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ECONOMIC AFFAIRS

EKO: ECONOMICS AND ORGANIZATION
OF INDUSTRIAL PRODUCTION

No 9, September 1985



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Except where indicated otherwise in the table of contents the following is a complete translation of the Russian-language monthly journal EKONOMIKA I ORGANIZATSIIA PROMYSHLENNOGO PROIZVODSTVA published in Novosibirsk.

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PROGRESS OF SVETLANA ASSOCIATION DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 3-4

[Introduction to articles that follow: "Svetlana: The Spearhead of Scientific and Technical Progress"]

[Text] Our country's economy has entered a new stage--a stage of a qualitative breakthrough in the development of productive forces. The introduction of the achievements of scientific and technical progress into practice plays a large role in carrying out this task. This has been proved by the activity of the leading industrial enterprises of the country. In this connection there is special interest in the Leningrad Svetlana Association. Svetlana is a new type of association. Its example shows the advantages of the two-stage structure of management envisioned by the decree of the CPSU Central Committee and the USSR Council of Ministers of 2 March 1973, "On Several Measures for Further Improvement of the Management of Industry."

Svetlana is one of the largest associations in the branch. It specializes in the production of electronics devices and instruments. It includes enterprises both in Leningrad and in other cities.

The very nature of the branch, which is on the cutting edge of scientific and technical progress, makes it necessary to update the products frequently and to reduce the time periods for assimilating them into production. How does one orient such a large collective, which includes large scientific and design forces and production that are equal in scale to medium-sized enterprises, for producing the latest products? How does one combine their interests? At Svetlana this is achieved in the following way.

A new organizational structure has been formed which unites design subdivisions and shops into something like mini-NPO's. More than 10 years have passed since it was created. But up to this point, in spite of its high effectiveness, it has not become widespread in scientific production associations of the country. There are only individual followers who are introducing the system at their own risk. We hope that our publication will draw the attention of interested parties and organizations to the innovation, above all the USSR State Committee for Science and Technology.

The technical policy of the association is oriented toward the achievement of the highest economic effect.

Cost accounting [khozraschet] within the firm is being introduced extensively. This motivates the collectives of the subdivisions to carry out those tasks that are facing the association.

A goal-directed personnel policy is followed for only high qualifications of personnel at all levels and a consolidated collective will contribute to the introduction of the achievements of scientific and technical progress into the practice of management.

The experience of the Svetlana Association convincingly shows us once again the correctness of the propositions advanced at the conference of the CPSU Central Committee on questions of scientific and technical progress (June 1985): acceleration of socioeconomic progress presupposes structural changes in production, a changeover to an intensive basis, the utilization of effective forms of management and a more complete solution to social problems.

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NEW PLANS FOR PRODUCTION ORGANIZATION DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 5-24

[Article by O. V. Filatov, general director of the association, Hero of Socialist Labor, winner of the USSR State Prize: "On the Agenda--Scientific Production Complexes"]

[Text] Advantages of the Association

The interaction between science and production, organizational factors in management and structural improvement of the units of production have been acquiring ever greater significance recently.

A principal step in the solution to these problems has been, in our opinion, the creation of associations--a qualitatively new form of organization of public production which requires a new approach to the system of management as well. Of course we are speaking only about large associations which have great material, labor and financial resources and, consequently, also possibilities which can be maneuvered more extensively and purposively in the interests of the production itself and the national economy as a whole. And this is not a mechanical joining of individual productions. We are speaking about associations which include in a strictly determined ratio scientific and production subdivisions which carry out in a planned way the entire cycle of the creation and assimilation of new products, including scientific research and experimental design work, experimental and series production, and also the development and manufacture of nonstandard technological and testing equipment.

In practice and in scientific literature one encounters various classifications of associations according to their production orientation: production, scientific production, production-technical and so forth. In our opinion, there is not a sufficient justification for all these different names and this impedes an objective and comparable evaluation of their activity. In so-called scientific production associations there is a prevalence of design subdivisions and the production base is critically inadequate. Here they are constantly experiencing a shortage of space for the assimilation and series output of products. And in production associations where the main thing is production that has been going on for years where they do not have "their own"

science, there is not enough activity in the assimilation of new and the latest scientific and technical achievements.

The modern association, in our opinion, should be comprehensive. This is the path which Svetlana took. An effective ratio between science and production within the framework of the association gives it the possibility of constructing a long-term scientific and technical policy and, because of this, planning work for the development and improvement of production and management of it and solving not only economic, but also social and educational problems.

Evaluating the role and significance of these associations and the structure of the national economy, one can assert with confidence:

from the standpoint of the economy associations are the most effective instrument for carrying out the decisions of the party and government in the area of increasing the effectiveness of production and improving the quality of work;

on the organizational and management plane this is undoubtedly a principally new structural unit of the national economic mechanism and a qualitatively different form of management of production and the labor collective;

in the sphere of public and social life this is a social formation which joins together people of various sociodemographic and occupational-skill categories.

The Svetlana Association was formed in 1962 according to the territorial branch principle as a unified production and management conflict. It included enterprises of both the basic and auxiliary production with the corresponding design and technological subdivisions. Even the initial structure of the association included principally new goals and tasks which distinguished it from independently operating enterprises and organizations. The entire scientific-production cycle of creating a product (development, production and distribution) is carried out here, which requires unity in the management of all stages of this cycle.

An important step, especially from the standpoint of providing for a future stockpile, was the creation of narrowly specialized branches in other cities. In their operational activity they are subordinate to managers of the corresponding productions of the association. The production there is less energy-intensive and they are responsible for the more labor-intensive technological operations. At the head plant, conversely, is concentrated the production of energy-intensive and mechanized operations which require highly skilled labor.

Such an approach makes it easier to eliminate bottlenecks in production, to utilize equipment and labor force better, and to search out reserves. The branches perform one more important function: they act as unique centers for the socioeconomic and cultural lives of their regions. The number of intrabusiness ties has increased and they have become more complex as a result of specialization and cooperation. On the one hand this has complicated the control of intrafirm cooperation and has required the introduction into cost accounting of elements that provide for delivery discipline in intrafirm

cooperation, but on the other hand it has reduced the number of mutual ties within the association on the branch level.

A considerable part of the functions for distribution of products and material and technical supply which were previously carried out by the branch staff were transferred to Svetlana. This circumstance and also the need for centralization of control of material resources within the framework of the association made it necessary to create a centralized commercial service. In March 1966 the decision was made to grant Svetlana the right to conduct major branch management in the area of economic activity. Thus an intermediate level in administration from above was eliminated. This decision is exceptionally important for the association. Specializing in several areas of science and technology it was forced to "close" the circuit in several major administrations of the branch as well. This, in turn, predetermined the length of the cycle of coordination and various kinds of approval.

The changeover to a two-level structure of management according to the schema of "Ministry--Association" sharply expanded our independence and gave us considerably greater rights and possibilities in the sphere of leadership. This made it possible to maneuver resources in the interests of the development of production and satisfaction of the material and social demands of the workers. Of course we also had greater responsibility for the fulfillment of assignments and for the development and assimilation of truly promising items as well as for the satisfaction of the demands of the clients.

Evaluating the significance of these innovations, one can now say that in the organizational, psychological and educational planes the two-level structure of management is the most progressive and effective; it removes many bureaucratic barriers and friction in the management hierarchy and at the same time provides greater rights to the managers of the association. An important aspect: management functions were made the responsibility of the management staff of the head enterprise without increasing the number of personnel there. Because of this it was necessary to increase the productivity of the labor of workers in the management service and improve the effectiveness and quality of their work. In the new structure of the association the main functions of management of production and economic activity, scientific research and design work, capital construction and reconstruction, material-technical supply and sales, finances and bookkeeping were centralized from the very beginning. Of course psychologically it was difficult for many workers, especially managers of enterprises, to lose their "independence," the right to make their own decisions, to have their own institutes and traditions in management, and their own norms and rules for the life of the collective. But they understood the inevitability and expedience of the innovations.

In Search of a New Management Structure

But the creation of the association in and of itself still did not eliminate the shortcomings in the management of the process "Development--Assimilation." At the very beginning of the 9th Five-Year Plan when, taking into account the reorientation of production on the basis of microelectronics, the technical policy had already been developed for the long-range future, we were aware of the interruptions in the work of the association. As an analysis showed, this

took place only because the rates of accelerated assimilation of new technical equipment and the forms and methods of organization of production and management that existed in the association no longer corresponded to one another and into contradiction. The fact is that the creation of new instruments within the framework of the traditionally "separate" process has many shortcomings. Two stages which depend little upon one another coexist within it. The first includes scientific research and experimental design work which is conducted within the framework of the design bureau and the second includes the preparation and assimilation of production and the organization of series output of items, which is carried out by production subdivisions.

If in the first stage the creation of an instrument takes place, as a rule, in a more or less peaceful setting, in a planned way, the preparation of production and the assimilation of output are carried out under stress and with complications. This happens primarily because of the different levels of technical equipment of the design bureaus and production and the different qualifications of workers and engineering and technical personnel in the subdivisions. A developer, for example, when creating a new instrument includes all that is best and most advanced in its design. But frequently these technical solutions do not conform to the concrete production, its technical level or the possibilities of material and technical supply.

In turn, participating in the creation of the experimental model is the collective of the experimental shop where technical supply and the skills of the workers are immeasurably higher than in the production shops, and expenditures are considerably higher than in series production. But the designer-developer is oriented precisely toward this technical base and toward higher professional mastery of the workers. In this he essentially has no "feedback" from the basic production and is oriented only toward the creation of a new item or, at best, toward the manufacture of an experimental model. What has been said should not be understood as an artificial limitation of the innovative ideas because of the modest possibilities of existing production. It is simply that it is necessary to know this production well in order to expand or update it promptly, but the main thing is always to stand on realistic soil and have a close creative tie with production.

In the second stage--preparation of production and assimilation of output--technical documentation is drawn up, if fittings and instruments are manufactured, materials and batching items are provided, and the instruments are assembled and tested. But since the conditions for this work are different for the developer from what they are in production they do not take into account the technological peculiarities of production. This means that the design documentation too requires serious adjustment and sometimes even radical changes in order to correspond to the possibilities of production. This has a negative influence on the time periods for the manufacture of the initial batch and the beginning of series production of new items. Thus the length of the cycle of "Research--Production" increases even more.

With the "old" established "Design Bureau--Production" ties the design subdivisions actually had no responsibility for the assimilation of new items in series production, not to mention their economic indicators. At the same

time the fulfillment of assignments for increasing the volume of output of products and increasing the effectiveness of production depend largely on the quality of scientific research and experimental design work that is carried out by the design bureaus.

In turn, the production workers are not interested in assimilating the output of new items because this involves breaking down production that has already been arranged and requires large expenditures of effort and money. They do not bear direct responsibility for the level or quality either.

We all know that the introduction of scientific ideas is a no less important task than their development. It requires improvement of planning and economic incentives to create conditions which will bring about the most rapid passing of new ideas along the entire chain--from invention to mass production--and place a reliable economic barrier against the output of outdated products.

Under these conditions the previous organizational structure of the association became an impediment on the path to acceleration of the cycle "Research--Production." The situation was exacerbated by the rapid obsolescence of electronic instruments, the complexity of their development and the strict requirements for time periods for their assimilation. It was necessary to have qualitatively new and more efficient forms and structures of management of production and science simultaneously.

In 1971 new structural units for management were created between the highest level of management (general director of the association--director of the head plant) and the design bureaus, the basic shops and the branches of the plant: scientific production complexes (NPK's) or design bureaus with production, and this took place without increasing the number of administrative and management personnel. Chiefs of design bureaus were placed in charge of the NPK, that is, in charge of the entire cycle of "Development--Assimilation."

In the association there are now five scientific production complexes that specialize according to the object principle, that is, in the corresponding areas of technical equipment. Within their framework they are developing especially important programs of the technical policy and they are successfully assimilating and producing new types of items and a considerable proportion of the association's products. Qualitatively new social units consisting of scientists and workers, designers and technologists, and managers of scientific and production subdivisions have been created and are functioning in them. The scientific production complexes have not only organically united science and production but have also created new collectives, and in this sense they are not simply a unified structural subdivision of the association but are also a logical and organic part of it. Now that they include developers of new items and technologists, experimental and series production, they bear full responsibility not only for the promptness, scientific substantiation and quality of the developments of items and for the level and time periods for the creation of new technical equipment, but also for the fulfillment of the main technical and economic indicators of series production, including the volume of commodity output, the products list, the rates of increase in labor productivity and the expenditure of the wage fund.

Science and Production Within the NPK

There is the opinion that directly uniting science and production and making the design bureau responsible for the work of the latter impedes the development of science. With time, they say, production will "eat up" science although it also engages in applied research. The practice of the NPK has dispelled these delusions. In our opinion there is no justification for arguing since in any case science is at the head of the scientific production complex.

An optimal combination of the numbers of personnel in the scientific and production subdivisions is another matter. An abundance of plans, ideas and developments with a lack of the corresponding production base leads to delay and, as a result, to obsolescence. The situation is no better when the production workers are instead of science, when the portfolio of ideas is empty and there is no sense of the future. In either case there is a retardation of scientific and technical progress. And therefore when determining the composition of the NPK it is important to take into account such indicators as the volume of science and production, the list of the products that are produced and the position (role) of the design bureau in the branch.

The Mechanism for the Activity of the NPK

All the economic and scientific-production activity of the complexes is constructed on principles of internal cost accounting [khozraschet] in keeping with planned assignments which were approved by the association. In particular, the plan of complexes for the assimilation of new items is developed on the basis of the demands and requirements of the developers of equipment taking into account maximum satisfaction of the demands of the national economy. It has become possible to have all-around planning of scientific research and experimental design work taking into account the continuity of the cycle "Research--Production," at whose basis lie target programs and comprehensive all-around schedules for the creation and assimilation of new items. This, in turn, makes it possible on a large scale to carry out predictions and long-range planning of the development of the association and to provide for the selection of truly crucial subjects, thus sharply increasing the role of the association in selecting its assignment of areas of technical equipment. On the other hand, a possibility has been created to conduct a unified technical policy which embraces all stages of the cycle from development to series production of new items.

Under the conditions of the NPK, as was already noted above, one provides for unified management in all stages of development and preparation of production and the organization of series output of the production. The plan of the complex for industrial production is determined as the sum of plans of shops under its jurisdiction. The results of its economic activity are also evaluated accordingly.

Current operational management of the production shops and the production as a whole has been made a responsibility of the design bureaus which, in addition to their own previous functions, have begun to perform functions of the middle

level of production management in the association. Correspondingly, within the framework of the MPK they have also combined the functions of design and technological preparation for both experimental and series production.

While previously, in essence, they developed two sets of technical documentation--initially for experimental and then for series production, now the design and technological subdivisions immediately after the development of a new item produce a complete set of series documentation. Because of this they have eliminated cases of adjustment of it in subsequent stages--during the time of preparation of production or at the beginning of series production. This is done through the efforts of groups in the NPK for the formation of technical documentation, technical archives and the standardization service. Thus favorable conditions are created for maximum unification and standardization of components and technical process and for the creation of base designs and technological processes.

The general directors of the association and the centralized services created on the basis of the head plant (supply and sales, finance and bookkeeping, capital construction and so forth) perform centralized functions of management for the association as a whole. Thus there is a clear delimitation of functions, rights and responsibilities for the various levels of management. Naturally, with the establishment of scientific production complexes these organizational principles and interrelations among complexes and centralized services of the association, just as between structural subdivisions and the complexes themselves, are constantly being refined. Now they are established in such normative documents as the "Policy for Planning and Organization of Scientific Production Activity," "Provisions Concerning Internal Cost Accounting" and "Conditions for Socialist Competition and Material Incentives."

In order to successfully solve technical and organizational problems related to the planning and management of scientific research work, experimental design work and production, and to provide within the framework of the complex for a unified technical policy from the beginning of the development to industrial introduction of its results and sharply increase the effectiveness of science and production in the NPK, there is unified technical and administrative-production leadership. Here the chief of the NPK handles problems of current and long-range planning, the personnel policy and the economics of production. The head engineer of the complex is responsible for problems of scientific and technical prognostication of science and production and preparation for the latter. The head engineer is responsible for the level and quality of the developments and the solutions to all problems related to the design of items, while the head technologist is responsible for ensuring the proper condition of technology in production and in science.

Preparation for Production of New Items

An essential peculiarity of the NPK is the unification of design and technological subdivisions of the scientific part and production, and their assumption of responsibility both for the technical level of development and for the technical level of series production. This makes it possible to carry out the preparation for the production of new items promptly and in the

necessary volume. Subjectivism of production workers when evaluating the need to assimilate them has been practically eliminated. The demands of the clients are better revealed. On this basis they maximally provide economic and organizational conditions for comprehensive planning of the development of the production of new technical equipment that is technically and economically advantageous both for the manufacturer (NPK) and for the consumer.

Such stages of technical preparation for production as the design and manufacture of special technological and monitoring equipment are carried out centrally in the association. Auxiliary shops and services are also subject to centralized management.

Thus the scientific production complexes of the association differ essentially in terms of their organizational structure both from individual independent enterprises and design bureaus and from our former plants with the design bureaus under their jurisdiction which, in spite of this jurisdiction and the traditional contacts with production, were still autonomous systems. The plant design bureaus had their own special goals and tasks, their own interests and their own organization of planning and accounting which was different from that of the enterprise, and because of this they remained outside the overall system of management of its production and economic activity.

Now the position and role of the design subdivisions in the system of the association have changed radically. With the creation of scientific production complexes they eliminated one of the main reasons for delay in the assimilation of new items, especially at the juncture of the stages "Development--Technological Preparation of Production." They eliminated the isolation of the design subdivisions from the basic production, by keeping them under the conditions of the production association.

This, in turn, has made it possible to avoid duplication in design and technological preparation of production and to combine or carry out in parallel individual stages of the cycle "Research--Production" and thus provide for continuity of the cycle and a sharp reduction of the time periods for the development and assimilation of new items. Because scientists have been enlisted in solving production problems and production workers in technological working out of designs in the early stages of scientific research and experimental design work, the quality of the developments has improved sharply and production outlays have decreased.

Reduction of the Cycle "Development--Introduction"

There has also been a certain restructuring in the labor of the workers themselves, mainly the designers. Of principal significance now is the circumstance that the developers know ahead of time where one instrument or another will be assimilated what are the technical and organizational-economic possibilities of a given production, the qualifications of the personnel and so forth. Their activity is now evaluated depending on how quickly and with what expenditures of labor and material resources the series production of the new technical equipment takes place. Therefore each individual has a vital interest in complete and rapid assimilation of the development into

production. The designer has come to be more profoundly and specifically interested in the equipment of the new production, the skills of the personnel and all of the possibilities that are at the disposal of the shop or section that is assimilating the instrument he has created. Moreover, since even in the stage of scientific research and experimental design work they begin technological preparation both of experimental and series production and the release of the new instrument takes place as early as the stage of experimental design work, he is obligated to promptly order the necessary materials and batching items through the material and technical supply divisions, and instruments, technological fittings and adapters in the instrument division. This, in turn, has significantly reduced and for small series even completely eliminated the stage of preparation for the production and assimilation of the items. On the other hand, there has been a sharp increase in the responsibility of developers for the technical condition of production.

The practice of the so-called "minicomplexes" has become widespread in the association: "The Division of the Design Subdivision--Production Shop," and in individual cases even "Laboratory--Section." They are based on the same object principle and coordination of the efforts of two collectives. Such "duets" which jointly and directly carry out the development and output of various items have proved themselves well.

It is possible to reduce the cycle "Development--Assimilation" mainly through joint conducting of state testing with the output of an initial batch, scientific research work and experimental design work, and also by combining experimental design work with the preparation of production and carrying these out on the basis of series production. This is accompanied by a rise in the technical level of items assimilated in production (previously the instruments became obsolete while waiting for 2-3 years to be assimilated); qualitative indicators of scientific research work and technical and economic indicators of production improve, and the reliability and durability of series-produced products and the effectiveness of production as a whole increase. Thus in the NPK for electronic instruments, of the overall quantity of scientific research work completed in 1976-1978 about 90 percent was used in development and production, and of the overall quantity of experimental design work was completed more than 70 percent was assimilated in experimental and series production. In the NPK for X-ray instruments along with the creation of the complex the number of items in production almost tripled and as a result of the modernization of a number of instruments going into series production a national economic effect in an amount of 2.5 million rubles was achieved. Of the 44 items developed in this scientific production complex under the 10th Five-Year Plan 34 have specifications at the level of or higher than the world achievements, and 20 of them, because of the priority of design decisions, have no foreign analogues. The Svetlana X-ray radiator and the Elektronika domestic mammographic equipment, the first domestic one, have no equals in the world in terms of their specifications.

The high effectiveness of work under the conditions of the NPK is also shown by the figures for the association as a whole. During 1976-1980 more than 200 units of new instruments and electronic items were in operation in the association. During this time they assimilated in production 200 types of

instruments and items (taking into account those which were developed but not assimilated under the 9th Five-Year Plan), that is, actually all of the scientific developments of the association are being introduced into production within its walls. It is typical that every second development is assimilated in production through a reduced cycle of "Development--Assimilation," and the average duration of the cycle has been reduced from 45 months under the 9th Five-Year Plan to 28-30 months under the 10th.

And so the proven ways of reducing the introduction cycle applied in the association are joint conducting of state testing beginning with the initial batch; combining the stage of experimental design work with the preparation of production; carrying out experimental design work on the basis of series production shops; carrying out experimental design work without conducting applied scientific research work; and combining scientific research and experimental design work.

It is important to note something else as well. During the years of the 10th Five-Year Plan and 4 years of the 11th the association has carried out all assignments regarding the technical level of items, and the assignments have been overfulfilled in a number of the basic parameters and items. Thus according to an evaluation of the state commissions, more than 30 percent of the scientific research and experimental design work was better than foreign analogs in terms of a number of parameters. The International Electrical Equipment Commission and the USSR Gostandard have granted the association the right to international certification for powerful generator instruments.

During this same period they developed and introduced into production more than 300 new and improved progressive technological processes with an overall economic effect during the 5 years of 17.5 million rubles, they increased the guaranteed life span 1.5-2-fold for 138 types of instruments with an annual economic effect in the national economy of more than 14 million rubles, and they saved almost 12 million rubles' worth of material resources.

At the same time, on the basis of intrabusiness accounting, they developed a system of control and a system of sanctions which were applied for mutual complaints. Thus late release of technical documentation for the preparation of series production entails a reduction of the material incentive fund intended for awarding bonuses for the collectives of design and technological subdivisions. Checking on the quality of the work throughout the entire cycle of "Development--Assimilation" is a unified service for monitoring of the association which envisions control of quality and reliability of the developments, control of the quality of the work in experimental and series production, and control of the quality of materials and batching items, that is, control over the entire complex of operations that affect quality.

Experience shows that such a comprehensive and technically substantiated system of control of product quality in all stages of development and production is the most effective from both the practical and economic standpoints, and it makes it possible on the basis of efficiently arranged "feedback" to achieve the required level of the items. Additionally, it becomes possible to promptly prevent and quickly discover malfunctions and to eliminate them on the spot.

The experience accumulated in the association completely confirms the correctness of the creation and development of scientific production complexes within the framework of the association. This qualitatively new organizational form of management opens up new prospects.

In the first place it makes it possible to construct the foundations for a more efficient structure of management of production and the association and to delimit more clearly and correctly the functions, rights and responsibilities among the various levels of management with an optimal ratio of centralization and decentralization and thus to apply the solution directly to the place affected, relieving high-level management of daily problems. Such an approach to the organization of management, in our opinion, fully corresponds to the party points to the effect that "each unit of the management system should take care of its own business so that the higher levels are not bogged down with a mass of current problems that distract them from the large problems, and the lower levels can resolve on the spot the problems that are within their competence."¹

In the second place, the formation of new structural subdivisions makes it possible to organically combine science and production and, on the basis of this, to conduct a unified technical policy from the beginning of development to industrial introduction of its results, and to change over to all-around planning of all work, taking into account a continuous cycle of "Research--Development--Production" and in so doing to sharply reduce the time periods for the development and assimilation of new items with the simultaneous improvement in their quality and reliability and as well as increased effectiveness of production as a whole.

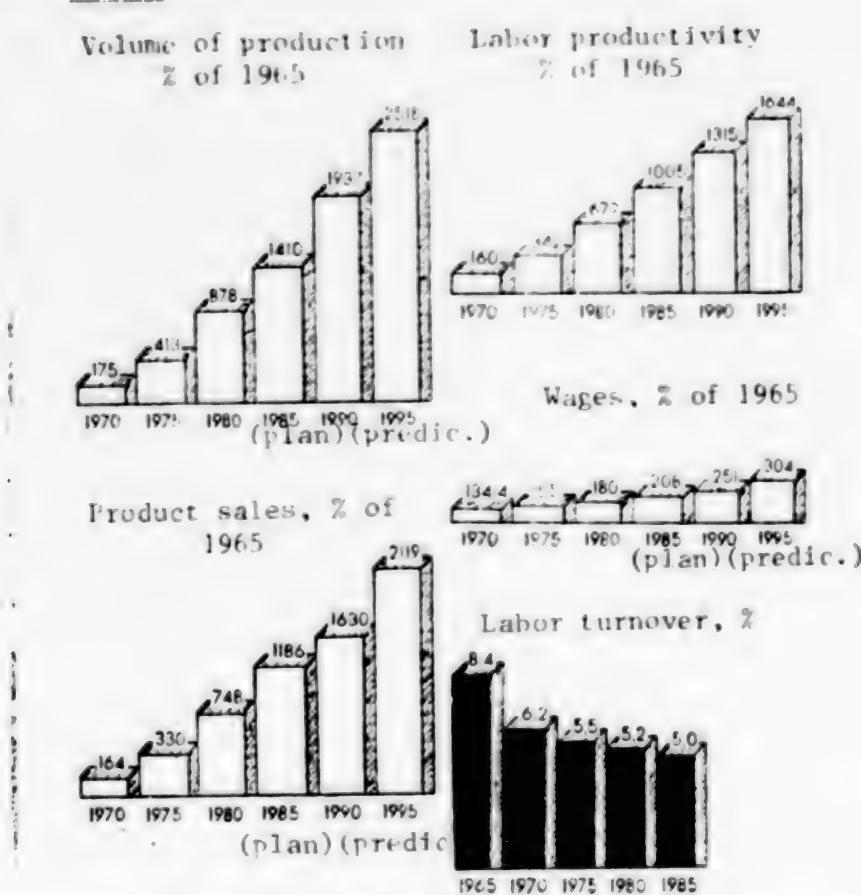
In the third place, with unified organization of the development and assimilation in production of new items there opens up a broad possibility of enlisting into this process not only engineering and technical personnel of production, but also skilled workers. This creates new conditions for increasing the creative activity of all workers in the management of production, accelerating scientific and technical progress and fighting for the effectiveness and improvement of the quality of work.

In the fourth place, since the indicators of the development of production and the increase in its effectiveness of becoming one of the main criteria for evaluating the work of the collective of design subdivisions, the new organizational form of management increases to a considerable degree the productivity of the labor of engineer-designers and technologists, and it also increases the effectiveness of the work of scientific subdivisions in general. This circumstance becomes especially significant since up to this point in national economic practice, essentially, we have not yet determined the forms, methods and criteria for the economic evaluation of the participation of individual scientific subdivisions in the development of industrial production.

In the fifth place, since the organization is the head organization for individual areas of electronic equipment, the scientific production complexes it possible to raise even higher its role and significance in the development

and introduction of truly crucial subjects in keeping with the new requirements of scientific and technical progress and the demands of the developers of equipment for new items.

But creating scientific production complexes is not all there is to improving the structure of production and management in the association. This is continuing both along the line of economic methods and along the line of organizational decisions.



--During 15 years (1966-1980) 423 new items were assimilated and the cost of the commercial products was reduced by 64.3 percent.

--During 15 years (1966-1980) 1,203 people were released as a result of mechanization of engineering and management labor; the inclusion of workers in mechanized labor was increased to 49.9 percent; and the increase in the proportion of workers engaged in mechanized and automated labor was 19.4 percent.

Of course there are difficulties along this path and essential ones. Up to this point we have not yet solved the problem of wages in all of the subdivisions of the NPK which is oriented toward the final result of its activity. If the labor of shop collectives is paid for actually taking into account the final results, we are unable to achieve this same situation with respect to design collectives. And although the people are all doing the same thing and working in close contact, their wage levels are different. We are trying to smooth out this contradiction but our possibilities are limited. I think that it is necessary to find a radical solution to these problems. It is time to reinforce the organizational restructuring economically, paying for the labor of designers according to the final result, for otherwise it will be very difficult to achieve success.

A certain step in this direction was the Leningrad experiment in improving the ways of the designers and technologists. But this was only an attempt. The experiment does not resolve the problem in principle or comprehensively, and it does not extend to industrial and engineering-technical groups. I think that there is an excellent solution: change the association over to complete cost accounting, to complete self-payment. Of course there will be greater difficulties with the scientific and design subdivisions, which are now on the state budget. But it is such an important matter that it is time to deal with it in earnest.

FOOTNOTE

1. "Materials of the 24th CPSU Congress," Moscow, Politizdat, 1971, p 69.

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SHOP CHIEF DISCUSSES LEGAL STATUS OF NPK

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 24-26

[Interview with N. A. Kulikov, shop chief: "Determining the Legal Status of the NPK"]

[Text] [Question] Did anything change in the work of the shop after the association changed over to the new organizational structure?

[Answer] Of course. We engage in mass production of thyristors. So: it was only because of the scientific production complex and the cooperation among designers, engineers and workers which can be arranged within it, we have been able to increase the output of usable thyristors almost 8-fold. During this time we have solved a whole number of interesting engineering problems and, moreover, have created three inventions. As a result the consumer of the products has gained. I wish to emphasize that this was done through the joint efforts of collectives of the shop and the designer bureau. In my opinion it would hardly have been possible to achieve such results without the mutual influence of the designers and production workers or without their close ties within the NPK framework.

And how did the design bureau and the shop cooperate in the development of a new item and its introduction into production?

[Answer] The policy for work within the NPK is regulated by internal orders and instructions, and there is a particular system of ties for developing new items. Thus the technical services of the shops and the shop chiefs are included in commissions for accepting scientific research and experimental design work. Knowing production well, the designers try to create instruments for the base technology and if this is impossible, in conjunction with production, they introduce new technical processes. Shop services participate in the development of the latter. The same thing is true of work for new technical equipment.

Since 1983 we have been trying to arrange things in such a way that the fourth and fifth stages of the design work take place in the shop. This includes experimental design work which results in the issuing of sets of technological and metrological documentation that have been "translated" into the language

of shop documentation.

[Question] This "translation"--is it done jointly by two "translators" from science and production?

[Answer] Of course this requires additional labor expenditures. But it is very useful to bring the final stages of development onto the production site. We are working under different conditions and using different equipment. Even the fact that one and the same gas which we use in the design bureau as well is introduced in different stages can be significant. But if we conduct the fourth and fifth stage in the shop, in our own production areas, the assimilation takes place considerably more smoothly. There is a guarantee that we would be on time as well. Therefore frequently the deliveries of experimental models to the client come from the production sites.

On the other hand, conducting experimental design work in the shops, of course, requires additional capital investments. And here there arise difficulties that are caused by the indefinite legal status of the NPK. The complexes exist in the association but they have not been legalized--there have been no decisions by the appropriate authorities. Therefore resources are allotted separately to the design bureaus and to production, and as a result we have different fund-forming indicators. It is necessary to search for internal reserves, and this is not always successful. For instance, with equipment we receive assistance from both science and the plant, but it is more difficult to find additional money for the wage fund.

[Question] What, in your opinion, is the main effect from the NPK?

[Answer] The time periods for the assimilation of products have decreased to two-thirds to one-half.

[Question] And what are they now in your NPK?

[Answer] This depends on the item. If before the creation of the NPK it took 2 years to develop and then as many years to assimilate, now all this can take place in 2.5-3 years. But again I repeat: this is for especially complicated items. A reduction of the time periods for introduction means additional loads for the collective and--the main thing--it requires that the collective work in a smooth and organized way. Here one cannot but mention again the problem of general financing which depends directly on the legal status of the NPK. We have solved all the other problems within the association--by methods of persuasion and control.

All workers should be imbued with the spirit of the NPK. But if the management staff is confident of the correctness of this structure, the rank-and-file workers are less convinced.

[Question] Why is that?

[Answer] In the extreme situations that sometimes arise--and hardly any enterprise will be able to avoid them completely--sometimes a worker suddenly recalls that he is working in production and refuses to become involved in the

problems of the design bureau or vice versa. The advantages of working under the conditions of the NPK are obvious. Now it is becoming increasingly crucial not only to expand but also to deepen the positive results of this form of organization of production and science. Complete legal recognition of the NPK, joint financing and orientation of all of its subdivisions toward the final result--this is what we need!

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FUNCTIONAL RELATIONS IN NPK DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Se, 85 pp 27-31

[Article by V. I. Bogdanov, chief of the Scientific Production Complex for X-Ray Instruments: "Reserves of Creativity"]

[Text] A large number of specialists from various subdivisions of the NPK participate in the work on a new instrument. They are brought in in various stages, they perform particular assignments and frequently they do not have an idea of the entire complex of problems that arise when creating an item. Fig. 1 gives a diagram of the interconnections of the workers. As we can see, the transfer of information from the head designers to the specialists and technologists and back through the managers of the subdivisions is complicated; this leads to significant losses of time and makes it difficult to plan and control the intermediate stages. The creative activity of the workers (specialists) in various areas is limited since they do not keep up with the problems with which the subdivisions are engaged.

In order to improve the organization of the work for creating new instruments within the framework of the NPK, all-encompassing comprehensive creative brigades (KTB) have been created. They join together specialists in various areas: measurement specialists, designers, vacuum specialists, chemists, shop technologists and others. Their selection depends on the rate of development. It is typical that, depending on the task, the time periods for its fulfillment and other conditions, these brigades are formed both on the initiative from above--by an order for the association or complex, and from below--on the initiative of the workers. But in either variant the brigade is headed by the head designer of the subject, who handles all problems related to the development and assimilation of the instrument. As a rule a collective of specialists from various divisions, services and shops which are related in one way or another to the process of "Development--Assimilation" forms around the head designer.

Fig. 2 gives a diagram of the interconnections of workers on various subjects under the conditions of the KTB. The head designers are directly linked to specialists and technologists, which makes the structure effective. The composition of the brigade (from 7 to 17 people) is formed by its leader, is coordinated with the chief of the corresponding subdivisions and is submitted

for approval to the head engineer. The collective of the brigade discusses the work plan for the entire period of the development, distributes the tasks and establishes the control dates for checking reports. This helps specialists who are engaged in associated problems to resolve organizational and technical issues. At conferences the brigades periodically sum up the intermediate results, analyze difficulties and adopt optimal decisions.

The duties, rights and responsibilities of the leader and the members of the brigade are stipulated in special provisions. Functionally, the members of the brigade are under the jurisdiction of the brigade leader, and the tasks set for them are carried out under the established policy through the leaders of their subdivisions. The latter are responsible for the effectiveness of the work of their subordinates (members of the brigade) and keep track of their deadline and the quality of their work. With this organization of the work the responsibility for the technical and technological level of the instrument is borne not only by the head designer, but also by the entire collective of the KTB. The leader of the brigade has a right to petition the management of the subdivision concerning providing incentives for a brigade member or imposing a fine on him, and also replacing him because of illness or in the event that he cannot do the work. Upon completion of the development the brigade leader determines each member's contribution to the final result.

The worker has dual subordination--to the head of the subdivision and to the brigade leader--and the situation is fairly complicated and even ornate. But there is no doubt about the expediency of the KTB since its structure makes it possible to obtain results with the least expenditures.

Another difficulty is planning assignments for the worker who belongs to several brigades simultaneously. This is done by the subdivision managers when the workers are distributed among the brigades taking into account their actual load, technical capabilities, psychological factors and so forth.

The effectiveness of the work of the brigades depends on more than just solving the aforementioned problems. The role of the head designer who is the brigade leader increases significantly. He must conduct training, explanatory and educational work with the personnel, taking advantage of various forms of it: personal conversations, seminars to exchange experience, and business gains in which concrete situations are handled. Indeed in comprehensive creative brigades it becomes necessary to have growth of the professional mastery and creative activity of both the leaders and the members of the brigade. Young specialists adapt easily here and necessary directions for technical training of engineering and technical personnel are revealed.

Our first KTB was created in 1976. But first such brigades were organized only to carry out especially complicated experimental and design work. The time of their operation was limited to the time required for this work. Now practically all experimental design work and the most complicated scientific research work are conducted within the framework of KTB's. As a result it has become possible to give samples to clients (equipment developers) in the last stages of experimental design work and immediately after the work has been accepted by the state commission, that is, before the instruments are assimilated in series production.

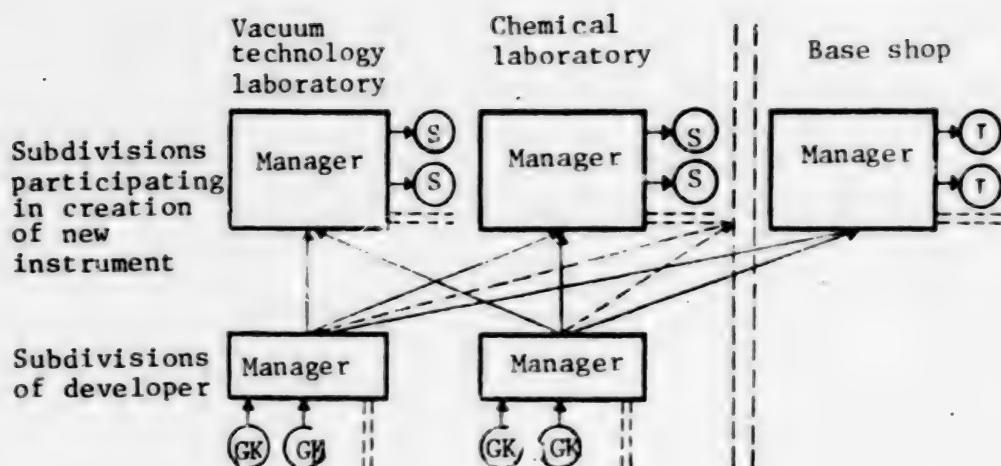


Fig. 1. Diagram of functional ties in NPK when conducting experimental design and scientific research work (GK--head designer, S--specialist, T--technologist).

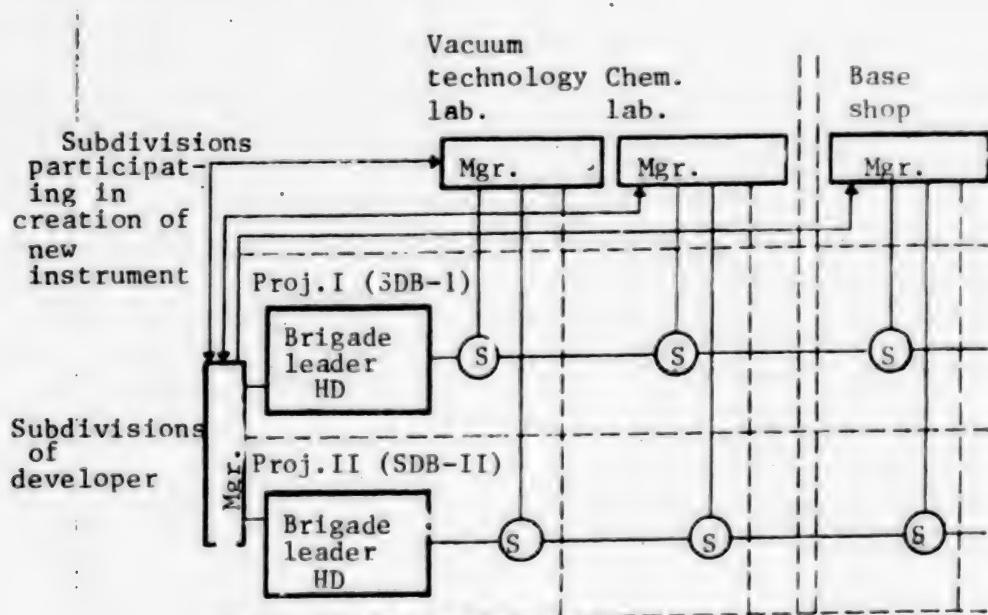


Fig. 2. Diagram of functional ties in comprehensive creative brigades.

This is important, for example, when creating X-ray instruments: the cycle of their development is considerably greater than the cycle of their creation and therefore before they are assimilated in production there is no need to organize series production of instruments; it is sufficient to deliver them to

the client in small series--and this essentially reduces the cycle "Development--Delivery of Samples."

Another positive effect of the activity of the KTB is the possibility of rapidly introducing modern design and technological solutions (obtained in developments) into series-produced items, which contributes to raising the technical level and making them more technological, and it also reduces the metal- and labor-intensiveness. This is achieved because of the fact that today the KTB's are being formed into permanent collectives. They do not only all of the scientific research and experimental design work for the thematic plan which is assigned to managers of the brigades, but also all the work with instruments for series production. Thus, for example, four types of obsolete types for industrial lighting were replaced by one, and the capacity of the type was increased 1.5-fold while the labor-intensiveness of its manufacture was cut in half. We have unified the cathode components of X-ray tubes for diagnosis and instead of six units only one unified one is being manufactured, while metal-intensiveness has been reduced to one-third and labor-intensiveness has been cut in half. The basic technical parameters of series-produced items, which comprise 70 percent of the volume of output, have been improved 1.5-3-fold.

A variety of scientific-technical creative brigades in the association are Komsomol creative youth collectives (KTNK). Their basic goal is to solve a concrete problem. They are formed according to the example of the KTB. In terms of the nature and content of its work and its composition the KTNK is one of the progressive forms of business cooperation among young engineering-technical personnel and workers. It makes it possible for youth to interact productively throughout the entire cycle of "Research--Development--Introduction." But the KTNK is also an effective catalyst for the adaptation of young specialists and for their professional and social growth. This makes it possible for yesterday's VUZ and tekhnikum graduates to master the fundamentals of leadership of production processes and the people employed in them and contributes to their acquiring skills of independent engineering labor at the highest professional level. Finally, this is an important channel for selecting and educating personnel, for independent creative labor within the KTNK framework appreciably accelerates the establishment of an engineer and reveals the most talented of them who will be capable of heading sections of the collective's scientific and production activity.

On the whole the comprehensive creative brigades have proved their expediency both as a school for technical and organizational growth of engineering and technical personnel and as an effective instrument for increasing the effectiveness of the cycle "Development--Assimilation." Their activity would be even more productive if there were a system of material incentives for KTNK members. But this is beyond the realm of authority of the association.

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HEAD ENGINEER DISCUSSES TECHNOLOGY

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 31-40

[Interview with A. I. Borovskiy, head engineer of the association, by L. Shcherbakova: "Everything Begins With Technology"]

[Text] [Question] Aleksandr Ivanovich, how extensively are the achievements of scientific and technical progress being introduced in the association? What directions do you consider to be the main ones?

Today it is no longer possible to achieve high rates of increase in output or to improve its quality through the usual ways--I would say that it is necessary to take a revolutionary leap when it comes to this. It is necessary to develop items with the help of computer equipment, automated planning systems and then an ASU for technological preparation of production. Finally, there should be a system for flexible automated production with an ASU for technological processes which will produce the greatest economic and technical effect.

What is decisive for us? I would first of all take note of technological problems. Increasing labor productivity and improving product quality began namely here, in any case in the electronics industry. If there is no efficient technology then mechanization and automation will not produce the expected effect. It is possible to infinitely improve electronic equipment items but if they do not meet the demands of the day only the designer will be able to help to solve the problem radically--to sharply improve quality and reduce production costs. If he proposes a solution on the basis of a quite different technology (a well-known example is the replacement of vacuum instruments with solid state), these are precisely the solutions that make it possible to increase the effectiveness of production in the shortest periods of time.

I shall give this example. We use large quantities of refractory materials: wolfram, molybdenum--we make grids from them. The thinner it is, the better the quality of the instrument. But at the same time there are large amounts of waste. It is much less expensive and more economical to use pyrographite which one obtains from methane. The proportional heat load of pyrographite is twice as great as with refractory materials. This makes it possible to create

completely new designs of instruments--small ones with large capacities. Our specialists have found a different way of obtaining grids.

[Question] But what if the design of the instruments has already "become permanent"?

[Answer] ...Then we shall begin to create a set of equipment. The association produces a wide range of items and for the majority of them we use equipment produced by our branch and other branches. But for generator and X-ray instruments we develop almost all of our own testing and technological equipment. In the developments we try to envision comprehensive automation of production.

Today even the most skilled and conscientious work is not capable of effectively controlling the processes of maintaining temperature or measuring parameters. Hence the automation of technological processes and the introduction of ASU TP [automated control systems for technological processes] becomes very important. Thus the integrated circuits which we now produce cannot be made even by a group of specialists because of the fact that on one silicon crystal a couple of square millimeters in size they place tens and hundreds of thousands (and now the number is approaching a million) transistors and other elements. It is impossible to do without applying powerful computer equipment with sufficiently high speed.

[Question] The association, of course, is not standing on the sidelines of the introduction of flexible automated productions (GAP's). What is your strategy in this area? Where did you begin?

[Answer] The appearance of microcomputers made GAP's not only possible but also necessary under the current conditions of economic development. Several years ago a group of specialists was formed to engage in the study of these.

They decided to introduce GAP's beginning with mechanical processing. This is an important area for any production and the number of highly skilled machine tool operators is not increasing and will not increase in the near future. Our task for 1985 was to create a section of several lathes controlled by computers with automatic warehousing and transportation, and subsequently to form an entire shop of 37-40 machine tools which were joined together into core lines. The work for creating an automated production for machine processing of parts for generator lamps has now been completed.

[Question] The changeover to GAP's requires special preparation and normalization of production. What specifically does this preparation consist of in your association?

[Answer] We began with educational work among management personnel and the training of specialists. The changeover to the automated process is fairly complicated, especially from the psychological standpoint. It is necessary to explain clearly to the workers what this will provide for them: working conditions will be easier, earnings will not decrease, and the work will become more interesting. A simple example. The assembly of integrated circuits is traditionally very difficult. Usually girls work with microscopes

here. The output norms are fairly difficult and trainees cannot fulfill them for up to a half year. But the earnings are fairly high. Our ministry has developed machine tools controlled by microcomputers which make it possible to do ultrasonic welding on a large number of contact areas. The worker simply establishes the first point with the help of a projector and subsequently the welding is controlled by the microcomputer. One worker can operate two of these installations. Labor productivity approximately doubled. We are now producing installations with which the first point of welding is determined without human participation, using the so-called machine vision. These are the kinds of flexible automated lines for assembling integrated circuits that we have in operation in the association. But before changing over to them we convinced the workers of the need for such a step and trained them for other occupations in keeping with their desires. Many who wanted previously to leave manual work became operators of the new machines.

Flexible automated productions require highly skilled servicing. They can be adjusted by both technicians and engineers. Of course in the future when the GAP's are more reliable to operate the work of the adjusters will be easier. But the question of training personnel will be no less significant since new, even more complicated complexes will appear. Therefore the training of skilled adjusters, engineer-measurement experts and metrologists is the main thing when introducing any new technical equipment.

But this is only the first part of the preparatory work. The second part is related to the creation of the necessary equipment. In the majority of cases we have universal equipment. Let us assume that we need a press that is equipped with rotary face expansion. Our branch does not produce these devices. We have not been successful in ordering them from other enterprises. Therefore we design this equipment, manufacture it and put it into operation through our own forces.

The next stage was the normalization of production. Thus we classified the parts that were manufactured and grouped them. At first glance this seems like an elementary task but it is not. The parts were classified according to the processing method--lathe, mill; according to sizes, configurations and so forth. The work took several years. This in itself shows its complexity.

[Question] Today you are on the threshold of introducing GAP's in machine processing. Does this mean that a large number of problems have been removed?

[Answer] Of course not. There are still stumbling blocks in automated production. Thus the GAP's handle copper shavings poorly. The lathe operators gather them up with a simple device--a hook. And in flexible productions there is whirling, winding and other unpleasant operations. Our specialists in the area of mold formation using cold pressure and plastic deformation methods have come to interesting results when working on the creation of semimanufactured products--blanks with minimum tolerances which then require a small amount of final processing on metal-cutting equipment. The use of these methods of mold formation and the transfer of the blanks that are received to the GPS (flexible production system) produces the necessary technical and economic effect. This is especially appreciable when processing copper, one of the most difficult metals to cut.

[Question] And so Svetlana is taking the first steps along the path to the introduction of flexible automated productions. How necessary and possible for you is the changeover to nonhuman technology?

[Answer] We need it more than many other branches do. In microelectronics, for example, we are dealing with elements whose quality is affected even by particles of dust which appear when the worker stands up or sneezes.... There are special tables on which all of this is calculated. Therefore for the electronics industry nonhuman technology is the path to raising the technological level of the instruments. Elements of this kind of technology have already been introduced in individual operations and this process will expand. This, of course, requires large expenditures, but they will be recouped--both from the value of the entire integrated circuit and especially from the value of one of its elements for superlarge integrated circuits (SBIS).

[Question] Explain, please.

[Answer] The creation of the SBIS will lead to a reduction of the percentage of output of suitable items and an increase in the cost of the unit item. But the SBIS contains tens, hundreds and in the near future millions of elements. Therefore there is a sharp reduction of the cost of the function. Moreover an increased degree of integration reduces the overall required number of items, which produces a great economic effect for the consumers. But in order to obtain it it is necessary to spend large amounts of money on the creation and perfection of the automated "nonhuman" technology.

One of the examples of nonhuman technology in the association is the GAP for machine processing. Of course it is not intended for eliminating people completely, but this is not always economically expedient either. For us it is simpler and more advantageous to change the products over from one operation to another than it is to arrange the most complicated, expensive devices which do not always produce an economic effect. There is no point in creating a complex just for the sake of the complex. It is necessary to have reasonable technology, not technology taken to the absurd. The measure here should always be the advantage: it is precisely with the economic substantiation that the GAP should begin. If this does not exist there is no point in dealing either with GAP's or automation of production in any form. In the final analysis what is important is not the GAP but the quality of the product and its production cost--that is, the effectiveness of production. We must not forget that there are many ways of achieving this.

I recall an EKO round-table discussion of the role of economic services in the enterprise. Its participants said that there are no longer enough highly skilled bookkeepers. Perhaps therefore we do not have enough good economic calculations of the effectiveness of GAP's either? I read somewhere that before risking a GAP (risking!) it is necessary to determine economically whether it is worthwhile to do this.

[Question] What convinced you of the economic effectiveness of the GAP for machine processing?

[Answer] According to the plan we are to invest millions of rubles in it. These will be recouped in 2-2.5 years as a result of reducing the number of machine tool operators and 24-hour operation of the equipment. The large capital investments in GAP's are determined also by the high cost of computer equipment. But here one also takes into account the cost of the SAPR, which is also recouped fairly rapidly in the sphere of designing the item.

[Question] In your opinion is the cost of a GAP or a robot not excessively high?

[Answer] Not for our branch. For other branches, of course, this is too costly. Moreover, additional efforts are required from technical specialists --they will have to solve qualitatively new problems which are related to extensive utilization of computer equipment. Our workers are fairly well-trained in this area since they are working on the creation of integrated circuits and elements of electronic equipment. In branches that are removed from this it will be more difficult for the specialists.

But even we are not trying to "invent the wheel." We are taking advantage of the experience of enterprises in other branches. I think that we need standard elements of GAP's--this will remove many problems.

[Question] How, in your opinion, should the GAP's be introduced--at the level of modules, complexes or lines?

[Answer] We worked out the ideology and technology for introduction on that same machine processing GAP. We made a module of three machine tools and trained specialists on it. Subsequently, on the basis of the module we shall create four lines--two lathes, a million and a boring line. Then we will have completed production. But this is not a simple joining together of modules. We are combining them into one, and we are oriented toward the final goal. But one must say that even the machine processing GAP does not encompass the entire technological chain. It ends with the assembly, but after that there are a whole number of kinds of processing--thermal, vacuum and others; and then there is testing.

I think that general dissemination of GAP's is hardly economically expedient. This task could be carried out individually for each production. For example, we have shops for producing integrated circuits where the level of automation is high, but these are not automated productions. Systems for dispatching, quality control and others are controlled by computers, but there are also people there, who carry out individual processes. I think there should be a limit somewhere to "nonhuman technology." In our production these limits can be established most expediently in individual operations and sections, that is, the GAP should be introduced in modules. Our ministry's policy is to create complexes of equipment with a closed block of operations in some production cycle. This is for such labor-intensive operations as assembly.

[Question] You said that there are many ways of increasing the effectiveness of production. What are they in addition to those which we have already discussed?

[Answer] Brilliant and sometimes even fantastic pictures of complete automation of production should not put a stop to such essential areas of activity as minor mechanization and local automation, which have not been finally perfected at many enterprises of the country, including ours. The point of departure for this work is analysis or, as they now say, certification of the work places and technological processes. Frequently this helps to solve complicated problems rapidly (although, perhaps, only temporarily). A large economic effect is produced by inventions of our skilled plant workers and highly qualified specialists. When it is necessary to increase labor productivity (and this is usually linked to a sharp increase in the output of one item or another) we call upon them for assistance and clearly specify the task. Comprehensive creative brigades which also include technologists and workers solve the problem by developing uncomplicated devices--and we quickly obtain an effect without large capital investments. For example, this is how we solve the problem of local gilding of the bodies of integrated circuits. The annual savings on gold amounted to about 190 kilograms.

[Question] Is it possible to compare the economic effectiveness of GAP's and the work for minor mechanization and automation?

[Answer] It is difficult. Even with the method of expert evaluations. Of course it is easier to recoup money invested in means of minor mechanization. But this is a fleeting effect. And we must look to tomorrow, to the 12th Five-Year Plan, and prepare for it. Of course from the standpoint of the future comprehensive automation is preferable. And it makes sense to compare GAP's and machine tools with numerical program control. It think that if we equip industry with them productivity will increase more rapidly than it will from the introduction of GAP's.

One must also keep in mind that capital investments in GAP's are fairly high and that they also affect other problems in production, for example, quality. Today we must invest large amounts of money in the testing of items. And, as they say, it is everybody's bankroll.

[Question] Aleksandr Ivanovich, which problem especially bothers the engineering services of Svetlana today?

[Answer] Above all, reduction of the material-intensiveness of items and efficient utilization of materials. We have prepared a program which encompasses the entire life cycle of the item: development, preparation of production, improvement of technology, mechanization and automation of its manufacture, testing and, finally, its return from the consumer after it has completed its service life. Of course not all instruments are returned to us: some of them are salvaged and some simply do not make it back to us. We are now trying to arrange systematic return of items that are subject to regeneration and extraction of suitable parts from them. There are a number of difficulties here. Thus mutual accounts are extremely difficult. Our items contain valuable metals which both we and the consumers take into account, but so far we have not been able to arrange to keep track of them precisely when they are returned. Apparently these problems should be solved

by higher organizations. We return rejected items for repeated processing. Alcohol and trichlorethylene are also used repeatedly--and we also restore them.

[Question] The significance of the introduction of the achievements of scientific and technical progress is shown by the fact that because of this the increase in labor productivity in the association reaches from 70 to 80 percent. What contributes to such successful work?

[Answer] In the first place, close contacts with scientific organizations. We cooperate with 40 academic scientific research institutes, not to mention the branch institutes. And they enrich us with new ideas and help us to create new technologies.

In the second place, the collective which is capable not only of receiving these ideas, but also developing them. People's interest in the introduction of the achievements of scientific and technical progress and new technical equipment--this is the main thing.

In the third place, the centralized capital investments under the conditions of the firm make it possible to use them in the places where they are needed most and not to disperse them. Moreover, all of our technical areas are specialized and they are handled by particular design bureaus and subdivisions of them. For instance, electrosparkling and electrochemical processing are handled by one design bureau and ceramic processing--by another. Thus we save not only money and equipment, but also the efforts of specialists.

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PERSONNEL MANAGEMENT AT SVETLANA ASSOCIATION DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 41-50

[Article by A. F. Tyagushev, deputy general director for personnel at the association: "On the Path to Managing Personnel"]

[Text] Work with personnel can no longer be limited to simply providing the enterprise with workers. It is necessary to have a unified strategy which includes measures for the development of personnel and retaining them in production. Correspondingly the work of personnel services should also be radically restructured; they must fully take into account the requirements of the modern stage of the development of science and technology, production, pedagogy and psychology.

The system for working with personnel in the Svetlana Association includes three interconnected subsystems. The first of them:

Staffing

This is the most important area in the work with personnel; it determines the selection of candidates and the singling out from these of the people who best meet the requirements of the association, and also the quality of the initial placement of workers in production according to their objective merits and taking into account the work positions.

Above all the personnel service is constantly analyzing and systematizing the orders that come in from the subdivisions for all categories of workers: laborers, young specialists and engineering and technical personnel. We have been convinced repeatedly that frequently the orders start from the bottom, especially for young specialists. In conjunction with managers of complexes, divisions and shops we refine the orders and this frequently forces them to think about the questions which are not facing them today but will arise tomorrow.

For the most efficient selection of personnel it is necessary to know all possible sources of finding them and above all the so-called guaranteed sources. The main source is the base training institutions (PTU's, teknikums, VUZes, and people who have been discharged from the Soviet army

who previously worked here as specialists). The fuller and more abundant these channels, the better the selection.

Doing a good job of staffing the base training institutions and also selecting plant candidates for stipends and for training in evening and correspondence courses help with occupational orientation and occupational selection of youth. In addition to the patronage training institutions the association today maintains close contact with more than 50 general educational schools, it selects youth for training in the base vocational school and it has contractual relations with a number of other PTU's of the city, and it also becomes involved in staffing the base departments at the VUZes. We send the best prepared workers to evening schools and those with stipends from the plant we send to VUZes of the city. We devote a great deal of attention to production training of people who have exhibited capabilities for one occupation or another.

The staff of workers and engineering and technical personnel in the association is constantly being augmented with graduates who have come to us under planned distribution. These, as a rule, are graduates from VUZes, teknikums and vocational and technical schools who have gone through production and prediploma practice with us and have prepared course and diploma projects under the leadership of specialists from the association.

The association's personnel service tries to approach problems comprehensively and to consider them in their interconnection. For example, the subsystem for staffing personnel includes occupational orientation, occupational training and occupational selection. Along the vertical they are directed toward solving one problem--hiring precisely those people who are needed by the association. But at the same time this is a basis for another subsystem which is called

Efficient Placement of Personnel

This provides for effective utilization of personnel in the association. Its primary tasks are initial placement of workers taking into account the qualifications they have acquired, the needs of the association and vacancies, the ensurance of their adaptation in the collective, and an analysis of data concerning changes in the composition of workers in terms of various occupations and positions.

For example, we are not always satisfied with the occupational training of young engineers who come to the association. This is why we, like many other enterprises of the country, have our own base departments in the Leningrad Electrical Equipment Institute imeni V. I. Ulyanov (Lenin) and the Technological Institute imeni Lensoviet, and we do a good deal to help with their probation period and their adaptation in the collective. The association's technical training division deals with retraining of young specialists and there is a special system of adaptation. The time periods for the adaptation of young workers and specialists depend on the most diverse factors. Upon recommendations from sociologists we have introduced monitoring of adaptation, which envisions not only mandatory "standard" participation of the administration and party and other social organizations, but also enlists

in this process a broad range of public adaptation supervisors and mentors for youth.

For example, each year a special course of lectures with an 85-hour program is given for young specialists. We try to conduct the redistribution of personnel in a planned way since occupational and social mobility of the worker should be optimally combined with the quality of the worker. Thus during the past 3 years, on the basis of an analysis of data concerning the capabilities and business qualities of workers from scientific subdivisions, more than 80 specialists were moved from scientific subdivisions into production subdivisions for management and leading engineering positions, and as many were moved from production into scientific positions.

An important instrument in carrying out this task and in advancing personnel along the job or professional "ladder" is their certification. It is no secret that frequently it is perfunctory in nature, does not reveal the real picture, and does not give true results in evaluating engineering and technical personnel. We have taken only one informal step in trying to overcome this situation--we have drawn up the necessary list of features and personal qualities of the worker that reflect his business, occupational and public social role in the collective, features which absolutely must be reflected in the description. And certain managers have admitted that they have a fairly one-sided acquaintance with their subordinates, and this requirement has forced them to think, to watch them attentively, and it has led the managers to a more profound approach in dealing with their workers. But the certification system alone does not always make it possible to make the most correct and substantiated decision concerning a worker, especially when it comes to advancement. Therefore today we are using more and more extensively sociological and sociopsychological research which is directed studying the personal qualities of the workers. In particular, the association has developed and utilizes recommendations of sociologists for studying the professionally necessary qualities of the personality of a manager. This makes it possible to obtain an individual psychological characteristic of each person who is included particularly in the reserve for advancement to the positions of shop chiefs or their deputies.

Compared to the previously accepted practice, the framework for forming the reserve has also been expanded. We include in it specialists not only of "our own" subdivision (advancement along the vertical), as was the case until recently, but also any other specialist regardless of his work position in the association (movement along the horizontal). All this makes it possible to arrange our work more specifically and purposively not only with respect to selecting workers, but also with respect to training them, increasing their skills and increasing their role in the work with the masses. This, in turn, in combination with the presentation of the forms and methods of work within the framework of the two preceding subsystems which I discussed above, creates prerequisites for the third:

Formation of a Stable Labor Collective

Today the personnel services of the association not only engage in the training and placement of personnel, that is, current, daily work, but they

are also changing over to direct control of personnel processes. Since the branch is at the cutting edge of scientific and technical progress, the changes here take place fairly rapidly. Because of this the control of personnel processes is especially important. Of course this is complicated work and we are only beginning it.

What does the third subsystem include?

The inculcation of pride and responsibility for the honor and merit of the association is increasingly becoming a guarantee of the stability of the collective. Each engineering and technical worker at Svetlana, for example, knows that if at one time he has "betrayed" his collective and association, there is little chance of his returning there. We will not take him back even though 80 percent of those who leave would like to return to us. The rarest exceptions are considered at the level of the general director and, as a rule, these people return to a lower position and correspondingly lower pay.

In the association today we have formed and use a strict system of moral and material incentives for workers for their actually invested labor. The main points of it can be reduced to the following:

The form of the incentive must take into account the continuity of the person's time of service in the association.

The incentive must actively combine moral and material forms.

The procedure itself should lend authority to the forms of moral and material incentives.

People who work conscientiously in our association, as a rule, have no "blank spots" (that is, places without entries concerning incentives, awards and so forth) in their labor books. A young person who has come to the enterprise is like one who has come to be tested for endurance. The main forms of incentives begin to be applied only after he has worked here for 5 years. I shall name only a couple of them.

For 5 years of irreproachable work the workers is given our gratitude, for 10 years he is awarded a diploma, and for 20 years he is awarded a diploma and a material incentive. The title "Honored Svetlana Worker" is conferred on a person who has worked for 25 years, he is awarded a diploma and a material incentive as well as a special certificate. This requires an order signed by the general director. Usually the certificate is awarded with a celebration in the association's museum or conference hall.

As a rule, the award is given right in the collective. This makes it possible to speak about each recipient and congratulate him more warmly and sincerely. Moreover, the collective knows how correct this award is. If the ratings have been increased unfairly the workers themselves notify the personnel service about this. And we take this opinion into account. Thus publicity is achieved. For the system is effective only when the contribution of each individual is determined objectively.

One must say that any event in the life of a worker which is of public significance is noted by the collective. If you have completed evening school, the tekhnikum, or an institute, or if you have been called into the ranks of the Soviet army--all this is reflected in official announcements for the association. We issue individual official announcements for the more deserving people who have made a significant contribution to the work of the association. But the attention paid to the human being should be combined with quite specific requirements that are placed on him by the collective. In addition to the system of bonuses we also have a mandatory system for withholding bonuses.

The fact that we try to control labor turnover also contributes to the stabilization of the collective. It now amounts to 5.1 percent on an average for the association. We think that for us this figure is close to the optimal amount: it contributes to renewing the collective and establishing efficient interrelations among workers of various ages. It sometimes happens that in individual sections replacement is inevitable. Thus in the assembly of microcircuits the optimal age of a worker is up to 25 years. If we do not provide for changing jobs when they reach this age there is an increasing number who are dissatisfied with their work and productivity drops.

We have studied attentively and are still studying the factors in turnover and replacement of personnel and we are singling out primarily those on which we must work and those which do not always depend on us or never depend on us (these comprise approximately 46-48 percent). But even these we take into account and do not let them out of our field of vision. But the factors requiring constant attention, as we call them, we have removed and broken down into groups. One of them, for example, includes turnover caused by the organizational and technical imperfection of production--irregular work, monotonous labor and so forth. The engineering and technical services must work on this.

At one time we had a large proportion of people released because of unsatisfactory relations in the collective. Having studied the reasons for the conflicts, we included special lectures on sociology and psychology in the programs of courses conducted on the basis of the division for technical training for foremen and shop chiefs. We held a conference entitled "The Role of the Manager in Resolving Sociopsychological Issues in the Collective." In all of the groups in courses for increasing qualifications we envisioned additional programs in sociology and psychology (for engineering and technical personnel--12 hours; for deputy shop chiefs and foremen--18 hours). On our recommendations the LETI imeni V. I. Ulyanov (Lenin) included these problems in the program of courses for retraining shop chiefs.

These and other measures we conducted enabled us to reach a point where there was no longer even a need for the conflict commission in the collective. Of course, contradictions arise, but they do not grow into conflicts. Today we are beginning to develop generalized occupational-position models for the basic occupational categories (lead engineer, engineer, deputy shop chief). Here we are counting on effective assistance from our scientists. We have broad possibilities of cooperating with them and we are taking advantage of these. Thus we have been cooperating with the Scientific Research Institute

of Comprehensive Social Research for more than 15 years. We have concluded creative agreements with the Institute for the Protection of Labor and Occupational Diseases, the LETI, and other scientific research institutes and VUZes--we are experiencing no shortage of people wishing to cooperate with us. But we do not always receive what we are looking for. Thus we do not have sufficient methods for plant sociological services which could guide us in conducting research at the enterprise. We are especially aware of this when studying the business qualities of managers and specialists and when developing occupational and job models for various categories of workers.

The system of personnel work described above makes it possible not only to successfully cope with daily affairs, but also to foresee various problems that may arise and to control their solutions. All of the work of the personnel service is regulated by the standards of the enterprise. Thus for each five-year plan we draw up a special plan for improving the qualitative composition of the association's personnel which, after being coordinated with the secretary of the party committee, the chairman of the trade union committee and the secretary of the AUCCTU committee, is approved by the general director. One must say that the interest of these agencies alone makes it possible for us to resolve successfully all the problems that are set before us.

The Organizational-Technical Base

The association is a stable collective which is capable of effectively carrying out scientific-technical, socioeconomic and ideological tasks. This is shown by the results of its activity under the 10th and the first 4 years of the 11th five-year plans.

But it is impossible to control personnel successfully without the corresponding organizational and technical base. This is why the network of personnel services today includes not only the personnel division, but also the division for technical training and the laboratory for sociological research. A large role in the control of personnel is played by such functional services as the Division for Organization of Labor and Wages, the Division for Scientific Organization of Labor and Control of Production, the technical division, and the service for the association's automated control system. These are the ones that determine the entire range of measures for selection, placement and efficient utilization of personnel and the moral and material stimulation of their labor.

Trying to bring the personnel service in line with the requirements of modern production, we have endeavored to change both its functions and the nature of its activity. In this connection the laboratory for sociological research has been placed under the jurisdiction of the deputy general director for personnel and has been oriented toward the study, analysis and search for new forms in the area of work with personnel.

Sociological and psychological research is gradually becoming an indispensable part of the control of labor collectives. As a rule, the manager and the aktiv of the subdivision in which the research is being conducted participate in the discussion of its results. For certain problems we organize periodic

exchange of opinions and experiments, for example, we conducted a conference entitled "Improvement of the Sociopsychological Climate and the Role of Party Organizations in This Process."

The division for technical training or preparation of personnel is an old, established service at enterprises. But it has been interested mainly in the quantitative aspect of the matter, registering the number of people who have increased their qualifications, and so forth, and it has engaged little in the qualitative analysis, the sources of influx of personnel and the level of their preparation. On the basis of the need for workers and the availability of our own vocational and technical school, we have reorganized the division within the limits of those same staff normatives and have created in it an office for vocational orientation and vocational selection. Among the four workers in this office are a physiologist and two psychologists. With them we have "closed" the work for orientation of youth, including schoolchildren. We have achieved a good deal because of this restructuring. Like other enterprises we have a training-production section for schoolchildren. We moved it to the base of the PTU, and the PTU shops--to the base of the technical training division, that is, to the territory of the association. Thus, on the one hand, it has become possible to better outfit the shops and to raise the level of preparation of young workers and, on the other hand, to utilize the base of the training production section more extensively.

For five years in a row now we have invited the directors of schools of Vyborgskiy Rayon and representatives of the RONO to the association. In the training-school section we present the fundamentals of labor training to almost 3,000 eighth-graders. We give them a good idea of what the association is like and also the possibility to orient themselves with respect to the selection of an occupation. For several years now we have been filling up our base PTU promptly by 1 September and enrolling only people from Leningrad. The association has no need for worker dormitories.

The office for vocational orientation "transfers" along the chain the supervision of people who come into the association by the laboratory for sociological research under whose aegis the system of monitoring the adaptation of young workers and young specialists is carried out: throughout the year they are observed by public controllers. As a result there has been a sharp reduction of the turnover of young workers, their satisfaction with their work has increased, and the time periods for the adaptation of young specialists have decreased sharply. All this produces appreciable results, not only social, but also concrete economic results. For the generalizing calculations themselves show, for example, that in our association a 1-percent reduction of turnover is "worth" tens of thousands of rubles.

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ECONOMIST DISCUSSES ASSOCIATION COST ACCOUNTING

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 50-62

[Article by V. P. Lebedev, deputy general director for economics of the association: "Cost Accounting Within the Association"]

[Text] In May 1933 S. M. Kirov said: "A technical, industrial and financial plan seems to be what we need now in order to improve the management of enterprises and take full advantage of all the reserves we have." Following this instruction, the Svetlana workers even in prewar years, in addition to drawing up technical, industrial and financial plans for the plant as a whole, drew one up for all the shops as well. This experience was also applied when solving today's problems.

Peculiarities of Cost Accounting

Since 1967 the association has been working under conditions of a mutually coordinated system of planning and economic incentives which have sharply increased the role and significance of cost accounting. It is precisely by means of this mechanism, as we know, that one establishes a particular system of economic relations and conditions are created which make it possible to carry out management effectively.

A new society, pointed out V. I. Lenin in his article entitled "On the Fourth Anniversary of the October Revolution," must be constructed "not on enthusiasm directly, but with the help of enthusiasm that is generated by the Great Revolution, on personal interest, on personal motivation and on cost accounting."¹

Cost accounting was arranged in the association on the same principle as the cost accounting for individual industrial enterprises but more extensive independence was introduced and this brought about certain adjustments. For us, for example, the main thing is to formulate and introduce a system of indicators which would provide for a correct evaluation of the work of each production collective. The association has created a system of intrafirm cost accounting in which one can note the following important signs:

flexibility of cost accounting, that is, the possibility of periodically, depending on how crucial various conditions and tasks are, to establish new indicators for the production subdivision;

depth of the inclusion of subdivisions--from the association as a whole to individual production sections;

differentiation of deductions into the material incentive fund depending on the difficulty of the planned assignments.

The rapid development of the association and the larger scale of its production sharply increased the significance of intraplant and shop cost accounting.

The Main Cost-Accounting Indicators

Annual and quarterly (with a breakdown for the various months) plans are established for the shops. The following indicators are established for the assembly shops:

the volume of normative net output in value terms;

the volume of commodity output in value terms;

product output according to the products list in physical terms (separating out the list of the most important items);

the volume of normative net output of products of the highest quality category;

the maximum level of expenditures per 1 ruble of commodity output;

including the limit on material expenditures per 1 ruble of commodity output;

labor productivity (calculated according to the normative net output);

the overall wage fund not including the material incentive fund.

Other indicators: the volume of product output in the control shop (industrial warehouse) in the normative net output; the number of workers; the average wages; the normative for circulating capital; the plant production cost of commercial products--these are calculated indicators and are used for economic analysis of the production activity of the shop and when drawing up the statistical report for the plant. The work of the assembly shops is evaluated according to the aforementioned indicators each month as a running total from the beginning of the year.

The following indicators are established for the metallurgical shops:

the volume of commodity output in stable norm-hours;

labor productivity;

the specific commodity output of products in physical terms with a separation of the mandatory products list;

the overall wage fund not including the material incentive fund;

the shop production cost of commodity output;

the limit on material expenditures per 1 norm-hour.

The other indicators--number of workers, average wages, normative for circulating capital, shop production cost of 1 norm-hour--are calculation indicators. The work of the procurement shops is evaluated according to cost-accounting indicators each month from the results of the fulfillment of the plan since the beginning of the year with the exception of the plan according to specifications whose fulfillment is taken into account in the monthly results.

The sections have already been changed over to cost accounting. The indicators are determined here taking into account the specific nature of the work. The monthly report data make it possible to objectively evaluate the work of the sections and to determine the amount of their materials incentives.

The feasibility of the annual plans of the association is ensured to a considerable degree by direct ties with the consumers. The fact is that Svetlana produces products from an overall list of about 2,000 type names and delivers them to more than 10,000 enterprises both in the country and abroad. Previously the portfolio of orders for the planned year was not determined until the end of the preceding year. Direct ties have made it possible even by the beginning of August to determine the needs for products that are planned for the following year, to form the plan much earlier and thus to provide for preparing production for its fulfillment.

The Material Incentive System

We have constructed it in such a way that everything advantageous to the association was equally advantageous to the shops. We developed provisions concerning bonuses for workers directly in the shops. Only this way is it possible to take into account all of the specific features of the work of the section, brigade, and individual workers and determine the optimal indicators and conditions for bonuses. Now in the subdivisions of the head plant and in the production units we have established more than 2,000 of these provisions; they encompass all workers. In order to assist norm-setting engineers and foremen we have published a standard for the enterprise entitled "The Policy and Conditions for Awarding Bonuses to Workers of the Association for the Basic Work Indicators."

The main indicators and conditions for awarding bonuses that were recommended:

the release of all or a particular proportion of the products to the technical control bureau (BTK) at the first request;

the release of products to the BTK at the first request in excess of the established level;

the reduction of losses from defective work;

the achievement of a certain level of suitable output;

reduction of technological losses;

the quality of adjustment or repair of equipment as determined by the amount of its down time;

the fulfillment of output norms and the achievement of a certain level of overfulfillment of these;

the fulfillment and overfulfillment of shift normed assignments;

savings on materials and parts as compared to the established expenditure norms.

A bonus for improving the quality of work, as a rule, is paid under the condition of fulfillment of quantity indicators. Thus the operator of precision photolithograph equipment are awarded bonuses for a particular level of fulfillment of the plan for labor productivity and release of products to the BTK with the first request. If the established level for release at the first request has been met then for every 0.5 percent of overfulfillment of the plan for labor productivity an additional 1.5 percent is paid in bonuses. The maximum amount of the bonus is set at 50 percent. During 5 months of 1983 labor productivity in the brigades increased by an average of 4.5 percent and the release at the first request--by 2 percent, while bonuses increased by 10 percent.

The brigade of welders of semiconductor instruments and microcircuits are awarded bonuses for the achievement of a particular level of fulfillment of the output norms and reduction of technological losses and losses from the defective work. For each percentage point of reduction of losses the bonus is increased by 5 percent, and for each percentage point of overfulfillment of output norms--by 1.5 percent. The maximum amount of the bonus is set at 50 percent of the wage fund and 10 percent of the material incentive fund. This has made it possible to increase labor productivity by more than 10 percent and the average earnings have thus increased by 6 percent.

Taking into account the high level of technical norm setting, the USSR State Committee for Labor and Social Problems has granted the association the right to establish for piece-rate workers and time-rate workers a bonus from the wage fund in the amount of 60 percent of the piece-rate earnings. It is paid for fulfillment and overfulfillment of the norms for the output of high-quality products which were developed on the basis of machine building (branch) and other more progressive labor normatives. It turns out that the bonuses for piece-rate and time-rate workers are higher than those of workers for whom norms of labor expenditures are not applied or simply do not exist.

But the workers are interested in changing over to work according to technically substantiated norms, which leads to releasing excess personnel. The level of bonuses is regulated by the standard entitled "Maximally Permissible Amounts of Bonuses Established When Developing Provisions Concerning Bonuses for Time-Rate Workers."

People who work on two and three shifts receive a larger amount of bonus. In the latter case piece-rate workers can increase their bonus up to 70 percent, time-rate workers--up to 50 percent and auxiliary workers--from 30 to 50 percent. Bonuses are somewhat lower for workers who work on two shifts. The amount of the bonus is determined by the shop administration and it is coordinated with the trade union committee. Brigades and individual workers who have their personal stamps and release their products bypassing the BTK are given monthly incentives in the amount of 10 percent of the piece-rate earnings for piece-rate workers and the wage rate for time-rate workers.

The system of bonuses for engineering and technical personnel and employees was developed in such a way that it created material incentives not only to fulfill all of the technical and economic indicators, but it also primarily stimulated the adoption of difficult annual plans and maximum utilization of internal production reserves and, consequently, it provided for an increase in effectiveness. The shop material incentive fund which goes for bonuses for engineering and technical personnel is now calculated according to normatives that are established individually for the assembly, metallurgical and machine-building shops. In order for the output of products to increase as a result of increased labor productivity, for calculating the normatives they introduced an indicator of the increase in output as a result of increased labor productivity--P_p (henceforth--indicator of increase). It is calculated according to the formula:

$$P_p = 100 - (R_{ch}/R_o \times 100), \text{ where}$$

P_p--indicator of increase in output as a result of increased labor productivity (percentage);

R_{ch}--percentage of increase in number of personnel;

R_o--percentage of increase in production volume.

On the basis of the indicator of the increase tables were developed by which one determines the coefficient of difficulty of the plan (see Table 1). The latter is used for recalculating the rates of growth of labor productivity.

The indicator of the increase in output as a result of increased labor productivity can be maximal if the production volume increases without an increase in the number of personnel. In order to motivate the shops to produce new goods for cultural and domestic purposes and household use, when calculating labor productivity as a fund-forming indicator the increase in the output of these goods during the first 3 years of their manufacture is obtained with a coefficient of 1.25. Thus when calculating the normatives for the formation of the additional amount to the material incentive fund we determine the increase in labor productivity with the help of the coefficients

of the difficulty of the plan and the increase in the output of goods for cultural and domestic purposes and household use.

Table 1--Coefficients of Difficulty of Plan With Growth of Shop's Production Volume

<u>Indicator of Growth (Pp)</u>	<u>Coefficient Difficulty of Plan (Kn)</u>
100.0	1.2
96.0-99.9	1.1
90.0-95.9	0.9
70.0-89.9	0.8
50.0-69.9	0.7

The normatives for the assembly shops are made dependent on two indicators. These are the annual planned level of increase in labor productivity (in percentages of the level of the preceding year) and the reduction of the production cost of the commercial output calculated on the basis of expenditures on the planned assortment under the conditions of the planned and the preceding years (see Table 2).

Table 2--Normatives for Deduction of Material Incentive Fund for Bonuses for Engineering and Technical Personnel and Employees in Assembly Shops, Depending on the Increase in Labor Productivity and Reduction of Production Costs

<u>Increase in Labor Productivity Calculated According to NChP, Taking Into Account Coefficients of Difficulty of Plans and Increase in Output of Consumer Goods Produced During the First 3 Years, %</u>	<u>Calculation of Material Incentive Fund (in % of Salary Fund)</u>	<u>Reduction of Production Costs, %</u>	<u>Calculation of Material Incentive Fund (in % of Salary Fund)</u>
Up to 3.0	25.0	up to 1.0	6.0
3.1-5.0	27.0	1.1-2.0	7.0
5.1-6.0	29.0	2.1-3.0	7.5
6.1-7.0	31.0	3.1-4.0	8.0
7.1-8.0	34.0	4.1-5.0	8.5
8.1-9.0	37.0	5.1-7.0	9.0
9.1-10.0	40.0	7.1-9.0	9.5
and so forth			

The maximum amount of deductions into the shop material incentive fund for bonuses for engineering and technical personnel and employees is 50 percent.

Here is an example of the calculation. The assembly shop plans to increase the production volume by 12 percent, the number of industrial production personnel--by 1.5 percent, and labor productivity as compared to the level of the preceding year--by 9.5 percent, and to reduce the production cost of the

commercial products by 5 percent. The indicator of increase in this case will be 87.5 percent. From Table 1 we find the coefficient of difficulty of the plan (0.8). The planned deductions into the shop material incentive fund are (in percentages of the fund for salaries of engineering and technical personnel and employees) from Table 2: for increasing labor productivity taking into account the coefficient of difficulty of the plan of 0.8--40 percent, and for reducing the production cost of the products--8.5 percent. Thus the deductions for bonuses for engineering and technical personnel and employees will be 48.5 percent.

If during the course of the year the shop has adopted a more difficult plan for fund-forming indicators the amount of deductions into the shop material incentive fund is increased only from the time of its adoption. This is why the shops are motivated to take on difficult plans as early as the beginning of the year.

The normatives for the metallurgical shops are established depending on the planned level of labor productivity as compared to the level of the preceding year and the increase in the volume of commodity output (in norm-hours) in percentages of the preceding year (see Table 3).

Table 3--Normatives for Deduction of Material Incentive Fund for Bonuses for Engineering and Technical Personnel and Employees in Metallurgical Shops, Depending on the Increase in Labor Productivity and Reduction of Production Costs

Increase in Labor Productivity

Taking Into Account Coefficients of Difficulty of Plans for the Output of Consumer Goods Produced During the First 3 Years, %

**Calculation of Material Incentive Fund
(in % of Salary Fund)**

Growth of Commodity Output, %

**Calculation of Material Incentive Fund
(in % of Salary Fund)**

Up to 3.0	20.0	up to 5.0	7.0
3.1-5.0	27.0	5.1-6.0	8.0
5.1-6.0	29.0	6.1-7.0	10.0
6.1-7.0	30.0	7.1-8.0	11.0
7.1-8.0	31.0	8.1-9.0	12.0
8.1-9.0	32.0	9.1-10	13.0
9.1-10.0	33.0	10.1-11	14.0

and so forth

The maximum amount of deductions into the shop material incentive fund for bonuses for engineering and technical personnel and employees is also 50 percent.

A Sample Calculation

The metallurgical shop plans an increase in labor productivity as compared to the preceding year of 7 percent, an increase in the output of commercial products--by 10 percent, and an increase in the number of personnel--by 3 percent. The indicator of increase is 70 percent; $K_n = 0.8$. The increase in

labor productivity taking into account the coefficient of difficulty of the plan is 5.6 percent (7.0×0.8). The planned deductions into the shop wage fund will be (in percentages of the fund for salaries of engineering and technical personnel and shop employees): for increasing labor productivity taking into account the coefficient of difficulty of the plan--29 percent; for increasing the output of commercial products--13 percent; and total--42 percent.

For machine-building shops the normatives are determined depending on the increase in the gross output and labor productivity as compared to the preceding year (see Table 4).

Table 4--Normatives for Deduction of Material Incentive Fund for Bonuses for Engineering and Technical Personnel and Employees of Machine-Building Shops, Depending on the Increase in Labor Productivity and Reduction of Production Costs

Increase in Labor Productivity

Taking Into Account Coefficients of Difficulty of Plans and Increase in Output of Consumer Goods Produced During the First 3 Years, %

Calculation of Material Incentive Fund (in % of Salary Fund)	Increase in Gross Output, %	Calculation of Material Incentive Fund (in % of Salary Fund)
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Up to 3.0	25.0	up to 1.0	6.0
3.1-5.0	27.0	1.1-2.0	7.0
5.1-6.0	29.0	2.1-3.0	7.5
6.1-7.0	31.0	3.1-4.0	8.0
7.1-8.0	34.0	4.1-5.0	8.5
8.1-9.0	37.0	5.1-7.0	9.0
9.1-10.0	40.0	7.1-9.0	9.5
and higher			

If during the course of the year the shop plan for fund-forming indicators changes then the amount of deductions into the material incentive fund calculated according to the normatives changes also. An increase in fund-forming indicator is a justification for recalculating the deductions according to the established normatives and for reducing them--reducing the amount of the initially calculated material incentive fund, but in a somewhat smaller amount than when calculating according to normatives using new indicators. When reducing the rates of growth of the fund-forming indicators the amount of deductions into the shop material incentive fund for bonuses for engineering and technical personnel and employees is recalculated for each indicator in the following way:

one determines the difference between the deductions into the shop's material incentive fund according to the initial and according to the changed plan;

the deductions into the material incentive fund stipulated according to the initial plan are reduced by the difference which is obtained which is multiplied by a coefficient of 1.2, but not to less than the minimum level established according to the normatives.

A sample calculation. The initial plan for the metallurgical shop envisioned an increase in commodity output of 8.1 percent, labor productivity--7.1 percent, and the number of industrial production personnel--1 percent.

The indicator of increase is equal to 87.7 percent, $K_n = 0.8$ (from Table 1).

According to the changed plan these indicators amounted to 7.2 percent, 5 percent and 1.2 percent, respectively. The indicator of increase in this case is 83.3 percent, and $K_n = 0.8$ (from Table 1). The increase in labor productivity taking into account the coefficient of difficulty of the plan before the change was 5.68 percent (7.1×0.8) and after the change--4 percent (5.0×0.8).

According to Table 4 the deductions into the shop material incentive fund for bonuses for engineering and technical personnel and employees will be:

- 1) for increased labor productivity: according to the initial plan--29 percent, according to the changed plan--27 percent, difference--2 percent;
- 2) for increasing the output of commercial products: according to the initial plan--12 percent, according to the changed plan--11 percent, difference--1 percent.

After the change of the plan the amount of deductions into the material incentive fund is established for the shop for bonuses for engineering and technical personnel and employees:

for increasing labor productivity $29 - (2.0 \times 1.2) = 26.6$ percent;

for increasing commodity output $12 - (1.0 \times 1.2) = 10.8$ percent.

Total: $26.6 + 10.8 = 37.4$ percent.

From this calculation one can see that the shop must adopt a more difficult but possible plan since if it is not fulfilled the deductions into the shop material incentive fund decreased.

It should be noted that if the material incentive fund exceeds the maximum established percentage of bonuses the deductions in excess of 50 percent of the sum of salaries for engineering and technical personnel and employees go for incentives for workers of the given shop for the fulfillment of especially important assignments or are paid as remuneration for the general results of the work during the course of the year.

The formation of shop material incentive funds using normatives makes it possible to enlist workers more extensively for active participation in management of production and helps to establish difficult annual planning indicators for the shops. Organizational and technical measures are developed for their fulfillment at the beginning of the year. They usually envision the introduction of new equipment and progressive technology; a reduction of losses from defective work and technological and nonproduction losses;

modernization of equipment; reduction of labor-intensive items; and increased qualifications of the workers.

Annual plans that have been discussed thoroughly and drawn up well have relieved the management personnel of the shops of the need to constantly refine, change and coordinate them with management divisions, they have made it possible to devote more time to production, and they have created the prerequisites for stable, rhythmic work. The introduction of normatives for the formation of the material incentive fund has made it possible to differentiate the bonuses for the various shops depending on the difficulty of the annual plans. The level of bonuses for engineering and technical personnel and employees of the shops today ranges from 31 to 50 percent while before the introduction of the normatives it was the same for all of the shops. The bonuses have been established only for the fulfillment of planning indicators and bonuses are not calculated for overfulfillment.

For workers of the management staff the amount of the bonuses established as an average for the subdivisions of the association and for workers of the production staff--an average for shops of the given production. The policy and conditions for awarding bonuses to managers, engineering and technical personnel and employees of the association are drawn up in the form of a standard for the enterprise which is refined annually.

The standard clearly determines the indicators and the basic and additional conditions for awarding bonuses to each subdivision whether it be a shop, a section, a division or a laboratory.

The amount of reduction of bonuses is stipulated with equal detail. For many years now when awarding bonuses to managers, engineering and technical personnel and employees the observance of executive discipline has been taken into account. A violation of this is established by monitoring the fulfillment of the guidelines, which is done with computer equipment. The conditions for awarding bonuses give the right to reduce the amount of the bonus by 10 percent if the worker has not carried out an order or instruction from the management, has failed to carry out a measure in the plan for economic and social development, has been late in responding to a letter, and so forth.

During past years the system of intrafirm cost accounting in the association has undergone the test of time. Constantly being improved, it has become an important lever which motivates the collectives of the subdivisions to engage in active creative work. Its action is reliably regulated by special provisions and instructions. These include the provisions concerning cost accounting in the association; instructions concerning the policy for the distribution and utilization of the material incentive fund; provisions concerning cost accounting for metallurgical shops, and provisions concerning cost accounting of assembly shops. In their totality these documents encompass the entire range of issues related to planning and economic activity of complexes, branches and shops; the formation and distribution of incentive funds; the interrelations among cost-accounting subdivisions; and, taking into account the determination of the results of cost-accounting activity, also the management methods. Always at the basis of the cost-accounting mechanism are

planning and the formation of a system of indicators that make it possible to comprehensively evaluate the effectiveness of the work of the subdivisions.

In this connection it has become necessary to restructure the processing of management information--to change over from traditional "manual" accounting to mechanized accounting, and then to automated accounting. The ASU has entered the life of the association for good. Its computer center today uses more than 100 ASU programs, and it sends more than 500 types of printouts to the production subdivisions and management services under strictly regulated conditions. The printout which contain the planning and actual values of indicators have been given the status of the only documents that establish the level of these indicators.

The ASU also essentially facilitates the management of labor resources by helping to analyze the quality makeup of personnel, the dynamics of turnover, the condition of labor discipline, and planning, and thus by contributing to a solution to problems related to the selection and preparation, placement and education, increase in qualifications and professional and service growth of workers.

The main direction for the development of the ASU of the association is the changeover from control of individual stages of the cycle "Development--Assimilation--Production--Sales" to management of the entire cycle. To do this it is necessary not only to increase the volumes and the convenience of calculations, but also to develop a system of new normatives, particularly for work in the stages of "Development--Assimilation." At the same time means of teleprocessing of information are being more and more extensively introduced.. They are being established in divisions of management and are being used for operational calculations of variants of the plan; for checking the balance of the plan for output with the expenditure of labor resources, materials, energy and production capacity; and for strictly coordinating the production plans with contractual commitments.

The results that have been achieved show that with a broad and comprehensive profile of production its efficient organization and the development of cost-accounting relations within the association play a primary role in the acceleration of scientific and technical progress and offer maximum possibilities of independently and efficiently solving problems of organizing production and assimilating new types of products.

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HISTORY OF SVETLANA ASSOCIATION TRACED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 62-72

[Article by Yan Strugach (Leningrad): "The Establishment of Svetlana"]

[Text] In a couple of years the collective of the Leningrad Svetlana Association for Electronic Instrument Building will celebrate the 100th anniversary of its enterprise. Of course at that time, at the end of the last century, when the plant was taking its first steps little could be said about electronic production; still in the future was the creation of radio equipment and even ordinary electric light bulbs. But the history of Svetlana begins precisely during those days when the Russian entrepreneur Ya. M. Ayvaz, a recent agent for selling cigarette papers, met with unexpected good fortune in the inventor of the cigarette rolling machine, V. G. Kurkevich. The business was getting off the ground. The Ayvaz Plant was producing cigarette-rolling machines which were receiving awards and praises at international exhibitions.

The enterprise grew rapidly, it threw itself into filling military orders, and it was soon headed by a shareholding company which acquired new sections of land in the outskirts of the city where the association is now located. By 1913 all of the machine-building production was transferred here and the plant came to be called Novyy Ayvaz. It happened that at this time the founder of the enterprise received an advantageous offer: the German specialist Weber tempted him with a patent for "electric incandescent light bulbs with a durable metal filament." At that time Russia was producing light bulbs with a carbon filament, which did not last very long and was made of foreign materials, and it satisfied the market demand by less than 20 percent.

In May 1913 on our vacant plot of land in Lesnoy construction was in full swing on the plant buildings, among which there stood out a red brick building which was later to become a five-story building with a white inscription on the face: Svetlana. The founders of the enterprise had thought for a long time about the name of the plant and the firm emblem. They decided to form it from the word "svet" [light], which was softened by the sound of the pretty woman's name Svetlana. It turned out very well.

And then on 30 May 1914 old style or 12 June new style the electric light bulb plant was born.

During the years which made Novyy Ayvaz and Svetlana the largest enterprises of St. Petersburg and the Zybrog area the influence of the Ayvaz workers grew and became stronger. An authoritative bolshevist organization was created and was headed by such celebrated party leaders as M. I. Kalinin, I. D. Chugurin and others. Ayvaz workers were on the Petrograd committee and they were among the first ranks of working detachments that overthrew the autocracy in February 1917 and participated in the preparations for the armed uprising in October. Ivan Chugurin handed the party card to Vladimir Ilich Lenin at the beginning of April 1917 at the Finnish railroad station.

The first Red party member to be appointed director of the enterprise during the difficult time of collapse was G. A. Desov, a 13-year Ayvaz worker with many years working for the revolution. The shortage of raw materials, processed materials and skilled personnel led to a shutdown of many Petrograd enterprises and the production of electric light bulbs was practically impossible under these conditions. But nonetheless even at the beginning of 1920 a decision was made to improve the structure of the electric light bulb production. This was related to the creation of a basis for electrification of Russia.

Soon a special commission investigated the condition of electric light bulb production in Petrograd and adopted a decision to separate Novyy Ayvaz and Svetlana. Thus after August 1920 the two plants began to exist independently --the Svetlana Electric Light Bulb Plant and the machine-building plant which later was given the name of F. Engels. Almost 40 years passed and again, at a new fork in its development, these two enterprises were joined together, enriched by an immense amount of experience, having achieved technical heights and having educated more than one generation of workers, technicians, engineers, scientists and managers.

Two years after the separation it was already difficult to recognize Svetlana. Many specialists appeared at the plant. The engineer S. B. Chudnovskiy came from Moscow and the first Soviet graduates of the Polytechnical Institute arrived: P. A. Alatortsev, L. S. Granat, Ye. B. Fedorov and a number of others. On their shoulders lay the solution to the most important problem: arranging for the manufacture of gas-filled light bulbs, which at that time were considered to be the latest word in technology. Argon turned out to be the best gas; the monthly output of light bulbs at the plant reached up to 200,000.

By 1928 the Svetlana workers had significant production capacities and personnel, but the prospects for their utilization remained unclear: the demand for electric light bulbs in the country had been completely satisfied. At the same time in Leningrad there was a production where the situation was critical: there was a considerable scientific stockpile but a shortage of production capacities, equipment and working hands. This was the so-called plant in Lopukhinka. Even in the 1920's many radio engineers knew the name of S. A. Vekshinskiy. In the Polytechnical Institute he, along with Prof M. M. Bogoslovskiy and the talented engineers F. N. Kharadzhoy and N. G. Zagarulko, developed the first radio bulbs in the country. Then they went to the laboratory of the electric vacuum plant on Lapukhinskaya Street (now the

Street of Professor Popov). In this laboratory, which was jokingly called "Vekshinskiy's Attic," under the leadership of the 28-year-old engineer (the future academician, Hero of Socialist Labor and winner of the Lenin and State prizes), in 1922 they began the creation and extensive production of various types of receiving amplifier tubes, transmitting tubes and X-ray tubes. The plant arranged for their output and even by 1927-1928 they were to manufacture 800,000 receiving amplifier tubes, 3,600 transmitting tubes, 1,400 X-ray tubes and other instruments. It was impossible to handle this volume of production with the existing area. Therefore in 1928 Svetlana and the Leningrad Electric Vacuum Plant were combined. Sergey Arkadyevich Vekshinskiy became the head of the technical section of the plant and the vacuum laboratory, determining the technical policy and the future of the new enterprise.

In a short period of time specialists of the updated Svetlana Association were solving complicated technical problems. They created a technology for manufacturing radio tubes with barium cathodes, as a result of which the instruments became 3 times more economical and durable. Powerful transmitting tubes were developed which in the competition organized by the Latvian state radio station turned out to have better parameters than the analogous tubes of the Phillips Plant which was famous at that time. In the plant's shops they began the output of equipment for electric vacuum instruments and this made it possible to become even more independent of foreign manufacturing.

During the first five-year plan the Svetlana collective was already strong in all respects. The plant was headed by the just-appointed director M. V. Yasvoyn. During these years there was more rapid organizational and economic improvement of the entire enterprise. Only 10 percent of all the engineering personnel remained on the management staff and 90 percent began to work in production. Previously they had spent 104,000 rubles a month on maintaining the plant staff, and after the reduction--less than 10,000 rubles.

The movement of shock workers at the plant was expanding and the basis was being laid for brigade forms of labor organization. Even in 1930 the leaders of the enterprises and workers of the people's commissariat of heavy industry became familiar with the experience of the Svetlana workers and drew the conclusion: "Svetlana is not only the best enterprise in the country but it also competes with enterprises abroad." The plant's collective along with several other Leningrad enterprises was awarded the Order of Lenin. This was the Eighth Order.

The years of the first five-year plans were productive in all respects for the Svetlana collective.

There is an interesting story about one of the important orders which were filled by the plant specialists on the eve of the Great Patriotic War. At that time in Leningrad the collective of the central radio laboratory proved for the first time experimentally that it was possible to discover aircraft using radios. Soon similar work was under way at the Leningrad Electrophysics Institute as well. At the same time the engineer P. K. Oshchepkov was conducting experiments in radio locations. For these principally new devices it was necessary to have new electrovacuum instruments. The Svetlana workers were creating a whole number of impulse transmitting tubes and were arranging

production of them. Soon the first domestic radar location stations Reven, Redut and Pegmatit had been successfully tested and accepted. The Svetlana instruments provided for discovering aircraft at a distance of up to 50 kilometers. Experimental remote observation stations were created and were introduced into operation during the first days of the war. The large collapsible lights that operated with continuous searching made it possible to detect fascist aircraft 225 kilometers from Moscow--such was the effect of the operation of the radar station which during the first months of the war was included in the system of the capital's antiaircraft defense. One must say that during the days of the blockade, because of these first radar stations the losses sustained by Leningrad from enemy bombings were reduced immensely. And when it was necessary to repair transmitting tubes that had been operated for their entire service life at the stations, the Svetlana workers remaining at the plant, in spite of the lack of materials and equipment which had been shipped into the inner part of the country, were able to carry out this order as well.

The Svetlana workers who remained in Leningrad during the war years were destined to experience everything which befell everyone else who resisted the blockade and defended their city from the fascist attack. The plant was evacuated in several stages to various cities. A large number of workers and specialists and also a considerable share of the equipment were sent to the east where an electric vacuum production was created in a couple of days. Thus the Leningrad Svetlana gave life to several plants which in time grew up and established their own areas in the electric vacuum production and electronics.

Immediately after the war the plant was created anew. They arranged for the output of their previous products but at the same time they began to develop new types of electric vacuum instruments, particularly powerful transmitting tubes for the radar information stations that were under construction. The tubes with capacities of 100, 250 and more kilowatts which were created by the Svetlana designers were unique aggregates and with respect to many parameters surpassed the best foreign models. This work was celebrated with awards from many international exhibitions.

An exceptionally important although externally minor event took place in one of the Svetlana laboratories in 1956. It was then that they were manufacturing the first domestic transistors, and mass production of these semiconductor instruments was being organized at the plant. Before the end of the year, according to the plan, the Svetlana workers were to manufacture hundreds of thousands of these transistors. By today's standards this is an insignificant quantity but then this required great efforts on the part of the entire collective and meant radical changes in the future activity of the enterprise.

In 1962 nine production associations were created in Leningrad and among them was Svetlana. The association included several plants, the corresponding design subdivisions and branches in other cities. In terms of its nature it was a territorial branch association, but in terms of the content of its activity it was an integrated production-economic complex which was operating on the basis of cost-accounting.

Svetlana was given its own unified account in the Gosbank which was for all the enterprises included in the association as well as the state plan. Immediately the management of production-economic activity, scientific research and experimental design work, the organization of production and its economy, capital construction and reconstruction, material and technical supply and sales, financing and bookkeeping were immediately centralized.

The decisiveness with which the Svetlana managers did this sometimes raised doubts. Then, several years later, people envied the Svetlana workers: the restructuring was solid, there was no need to return to it, and therefore it was possible to move forward. And another important step which few of the neighboring enterprises decided to take but which was taken at Svetlana: from the volume of production and sales of products of the association they excluded intrafirm circulation--mutual deliveries of products among the plants that were included in it.

Extremely important for the development of the enterprise was one other organizational event which took place 3 years later. Working at that time as general director, I. I. Kaminskiy, having returned from a business trip to Moscow, notified the collective that Svetlana had been given the rights of a branch main board. The association was now directly under the jurisdiction of the ministry with all of the consequences that ensue from this--duties, responsibility and possibilities. This event was of principal significance for improving the structure of production management.

The 1960's were also a time of major changes for the association. Conducting the economic reform of that time, managers of the association were able to organize an efficient changeover of the entire collective to the new system of planning and economic incentives. This helped to introduce cost-accounting relations in the shops. And if one looks attentively at Svetlana's system of cost accounting today it is not difficult to see in it everything that was developed during the 1960's.

In 1965 the workers of one of the Svetlana shops where radio bulbs were produced, when analyzing the plan for technical progress, was thinking about which changes could take place in the collective in the next few years. Previously they could only guess at this. Now, because of sociological research, they could see the shop's collective in all of its diversity. Moreover, they were able to foresee fairly precisely which changes would take place in the technical supply for production, which qualifications and which specialties would be required for workers, and so forth. All this taken together made it possible to plan not only the shop's economic future, but also its social future, coordinating the one with the other. Thus from the technical, industrial and financial plan of the 1930's and from subsequent plans for organizational and technical measures the shop arrived at the first plan in which they began to predict also the social changes in the life of the collective.

Strictly speaking this first shop plan was still far from perfection. But the Svetlana party committee saw in it those valuable and extremely important origins which had an immense future. Other shops began to engage in social

planning and soon in the association there was an initiative group for developing a plan for comprehensive economic and social development of the Svetlana collective. It became a scientifically substantiated, financed and materially supported system of intercoordinated measures of an organizational, technical, economic and social nature--such was the formulation given by the Svetlana workers of the program they drew up.

Even at the end of the 8th Five-Year Plan when the preliminary results of the firm's activity were summed up it became clear that the comprehensive plan was gradually being transformed into a mighty lever for the development of the collective. During 4 years the volume of commodity output in the association as a whole increased by 61.5 percent, and labor productivity--by 50.4 percent. These rates (and subsequently they became considerably higher) bore witness to the correctness of the path that had been selected. At a presidium of the AUCCTU where they were considering the experience in planning at Svetlana there were many advocates and followers of it. And later, year after year, the comprehensive plans began to be developed at many enterprises of the country and to encompass entire cities and regions. In 1980 a large group of Leningrad and Moscow residents were awarded the State Prize for the development and introduction of a territorial system of comprehensive economic and social development of the cities of Moscow, Leningrad and Leningrad Oblast. They included the general director of the association, O. V. Filatov.

The creation of the association and the radical restructuring of the system for management of production were an important stage in the life of Svetlana. This resulted in changes throughout all of the enterprise's activity. And after only a decade they logically set for the collective a number of problems on whose solutions the future of Svetlana depended.

It was the Svetlana Electric Vacuum Plant and it became the Svetlana Semiconductor Plant. But what will it be after 5, 10, 15 or 20 years? This question arose at the beginning of the 1970's. What innovations will scientific and technical progress bring and how soon will this take place? What influence will they have on production and on the Svetlana workers themselves?

It is no accident that the association's collective, having experienced the advantages produced by scientific planning raised these issues for itself at the beginning of the 8th and 9th five-year plans. In 1956 the first semiconductor instruments comprised only a small percentage of the overall production volume. In 1971 their proportion had increased dozens of times over. At that time the first successful attempts had been made to obtain several semiconductor instruments simultaneously from one plate, and it was only a matter of a short time before the technology of integrated circuits would be mastered.

During those days microelectronics came to Svetlana and far from everyone here understood the need to master this. The more so since the changeover to this product involved an essential change in the enterprise's traditional profile. But the firm's general director O. V. Filatov thought that now was the time when it was necessary to have a clear idea of the future of development. In one of the meetings of the board of directors he said: "We are now following

the demands of our clients--the consumers of Svetlana products. And as long as this situation stays the same we shall lag behind them and remain below the modern level of electronic instrument building. We need to determine the demands of the clients and reach a point where we offer them the latest instruments which have never been used anywhere before. Only then will we be able to determine the development of various branches of industry."

Complicated and labor-intensive work was started for predicting the association's technical development up until the year 1990. The essence of the conclusions drawn by the specialists was that in the next 20 years the proportion of electric vacuum products at Svetlana would be reduced to the minimum. And this meant that it was necessary to prepare for the changes ahead of time.

For 2 years large changes took place in the management structure and the personnel system at the association. Measures were taken to accelerate the introduction of the achievements of scientific and technical progress. It was precisely at this time that the Svetlana collective along with other Leningrad collectives came out with the initiative to reduce to two-thirds to one-half the time periods for the development assimilation of new items.

Having set this goal the Svetlana workers entered upon a course toward searching for new forms of uniting science and production. It was decided to change the classical system for the origin of new technical equipment in which one stage inevitably followed another: scientific research, then experimental design developments, preparation for production and series output. Usually these stages go through various collectives and therefore the collectives themselves were joined together first of all. This is how the creation of scientific production complexes (NPK) was started at Svetlana. The positions of plant directors were reduced, the chief of the design bureau was placed in charge on the chain "Development--Assimilation" and the production chiefs were placed under his jurisdiction. Thus the years of the 1970's were truly stages in the association's activity. Well, the present day at the association is discussed in the articles gathered together in this issue of EKO.

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MANAGEMENT INFORMATION SYSTEMS DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 73-74

[Introduction to articles that follow: "Management Information Systems on a Miniformat Basis"]

[Text] In EKO No 2 for 1980 and No 5 for 1982 we published materials about management information systems (UIS) using card catalogues. They elicited from the readers a great deal of interest which is not declining even today. As before, we are being asked to send planning documentation (we are physically incapable of doing this) or publishing the address of the developer (we have not yet refused this to anybody). There is still a great need for a simple, convenient and inexpensive management instrument.

Things have not stood still during this time. During 1982-1984 the system has been introduced at several machine-building plants, a repair enterprise, a pulp and paper and a furniture combine, a coal mine, a construction trust, a locomotive depot, a trolley and street car administration and in several planning institutes. Experience has shown that the management display using the card catalogue can be created in the most varied objects without any limitations on the scale (previously this was used mainly for small objects).

In today's issue we have included articles which continue the aforementioned publication. In these the readers will find a suggestion to use the new method of miniaturization of information bearers and description of the management picture for managers of the various ranks.

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MINIATURE DOCUMENTS USED FOR MANAGEMENT WORK

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 74-81

[Article by G. G. Novikov, division chief of the Energokhimmash Special Design Bureau (Novosibirsk): "Managerial Minidocuments"]

[Text] Minidocuments are documentary support for management on the basis of miniformat units: mini card catalogues, files, sections and so forth. This opens up large possibilities of efficiently simplifying management procedures. Management displays created in miniformat information units are acquiring a new quality--portability. Let us stipulate immediately that the portable micrographic accumulator like the readers that are widespread abroad (portable reading apparatus with a built-in library on microfiche with the overall sizes of a "diplomat's" briefcase) would solve many problems. In 1979 in the United States the micronet consulting firm demonstrated the so-called "paperless office." Depending on the kind of materials that come in all of them are transferred either for electronic or for micrographic storage. They can be subsequently edited, indexed, sorted, selected or presented on paper. The office has portable devices of 16 types for looking at microfiche which satisfy the most varied demands of the readers. The workers can take them home to do work. Incidentally, for those who somewhat absolutize the concept of "paperless technology" let us note that, in the opinion of the firm's representative, even the "paperless office" cannot function without a certain quantity of paper.¹ Thus we are speaking about an essential reduction of the flows of paperwork but not about complete elimination of them.

Our real management practice is still far from readers and "freedom from paper." Therefore it is necessary to search for ways of creating a technology that is simple and accessible to any enterprise which, in terms of its convenience for the user and effectiveness, would approach technologies that are based entirely on technical equipment. This is the path of the creation of management displays on the basis of miniformat information units.

We include among the latter:

- 1) instant numerical mini card catalogues. They are composed in keeping with the principles described in EKO No 5 for 1982 for cards with a reduced format of 105 x 148 millimeters.

2) foldable working minifiles (sizes: 115 x 160 millimeters, 45 by 60 millimeters, 30 x 40 millimeters).

3) miniprinting sources:

typographic printed editions of standard miniformats of 107 x 165 millimeters and less;

minifile sections manufactured with Xerox and printing equipment with a format of 115 x 160 millimeters.

While the preceding variant of management displays included three kinds of accumulators: card (KN) document (DN) and micrographic (NN), in the new variant of the management display based on miniformat information units which we shall call UTM (management display miniformat), there is no such division. The micrographic accumulator is eliminated from the new variant of the management display, although enterprises having the corresponding capabilities can use it as well. We would like to find a variant of the UT which would not only become a mass management instrument on the basis of today's capabilities of any enterprise (system streamlining and the simplest forms of miniaturization of traditional sources), but would also make it possible to change over in the future to the technical equipment of the future (which, it seems to us, will be micrography).

The use of micrography in institutions of the United States is increasing at rapid rates. In 1980 \$2.2 billion were spent on research in this area, and in 1985 considerably more.² In 1977 more than 3 million information sources on microbearers were sold: books, journals, catalogues, reference guides and so forth. A copy of a micropublication with an average of 200 pages costs 10 cents while the ordinary publication of the same type cost \$2.

As experience shows, the replacement of micrographic miniaturization with miniprinting is not only a simplified alternative under the conditions of a shortage of micrographic means. New possibilities are opened up for the creation of flexible, portable personal information supplies which are easily rearranged for current needs. They provide a person with the necessary information not only at his desk, but also on business trips, on trains going to production sites and associated enterprises, and perhaps, even on vacation.

Actually, many managers have long been using all kinds of specially sectioned notebooks, binders, pocket notebooks and so forth. But the fact is that all of this pocket information, as a rule, is selected in terms of some particular issues and is not coordinated with the basic information sources which are used by managers in the daily work process and they are inefficiently (most frequently like a "relay" along a long chain) "closed" to personnel. A stereotypical view has taken form of the role of the notebook in business activity: this is something additional, convenient for writing down private issues and storing small amounts of reference information: telephone numbers, addresses and so forth. They are "stamped" with this stereotype. Yet there is a need to radically revise the "set of occupations" of the notebook, or, rather, the small-format source in information and business activity.

Relatively recently adding machines and manual calculating machines were widely found in our institutions. It has now become customary to use miniature table and pocket calculators. It would seem that no less rich prospects are opened up by the utilization of miniformat information sources. They can be combined in traditional briefcases of the "diplomat" type, purses, files or into specially manufactured cases.

The overall principle of the organization of miniformat management displays is similar to the arrangement of the memory in a computer: DZU-OZU-SOZU (long-term--operational--superoperational memory device). The DZU is the ordinary stationary storage place for accumulated information where miniformat information units are combined in a systematically ordered way according to thematic headings. The OZU is the aforementioned portable accumulators in which miniformat information units necessary for a given period of the user's activity are concentrated in the same systematic form. The selection of sources is constantly changing: unnecessary ones are returned to the stationary accumulator and necessary ones are put into the portable one. The SOZU is practically always with the user in an efficient folding file which includes in concentrated form the entire area of professional activity in the private interests of the user. This "express" supply is constantly ready.

On the basis of standard briefcases of the "diplomat" type, files and handbags the author prepared and selected various variants of portable accumulators using various kinds and type sizes of miniformat information units. Practice showed the high effectiveness and great potentials of using miniformat sources for creating personal information files. For example, photo 3 shows the experimental model of the small format management display of the top manager of an organization with 250 employees which is done with folding minifiles. The display, as one can see from the photograph, can be held in the palm of the hand. And a portable accumulator the size of a briefcase which combines all kinds of miniformat sources makes it possible to create small-format displays for practically any object, especially in combination with elements of the full-format management display. After all, we are speaking about a personal information supply that is constructed for concrete information needs of the manager and the actual time budget, and the possibilities of this in terms of handling information are fairly limited.

The immense volume of information which surrounds the manager is both "solid," as a rule, only from the outside. In his consultation work the author frequently encountered situations where several sheets of the pocket paper at the manager's work place were more informative than a large journal or a large sheaf of computer paper or on the terminals. Unfortunately, the stunning figures concerning the speed of electronic processing of information sometimes "forget" the simple idea: is it really necessary to process this information on the machine and what with the constant shortage of time is the manager in a position to "digest" it? A unique kind of managerial "tester" which makes it possible for the manager before making a decision to "measure" the production of social parameters of economic processes is the small-format management display. Small does not mean insignificant--"A gold coin is small, but expensive."

The management display that has been described can be a good aid for the managers and specialists of "mobile" professions: geologists, assembly workers, adjusters, builders, repair workers and so forth.

Extensive use of miniformat information sources on ordinary printed paper in various areas of man's activity opens up great possibilities for increasing the effectiveness of mass information resources.

Billions are being spent in the world today to narrow the information avalanche. But it is also important to know how intelligently these avalanches are closed off for each consumer of information. Here one should not forget about the great unutilized possibilities of traditional printing and publishing. Certain periodical publications print items that are to be clipped out (unfortunately, with text only on one side) and files of information with a pocket-sized format. Why not make permanent special appendices for clipping with highly concentrated information regarding crucial problems in the mass magazines (including EKO) and newspapers (in the magazines--one to two pages, in the newspapers--one to two times a month)? For instance, "In the Card Catalogue of the Manager," "In the Notepad of the Economist," "In the Notepad of the Engineer," "In the Notepad of the Educator," "In the Notepad of the Rural Worker" and so forth. The clippings (or, better, sections that can be torn out as in calendars) can be printed with text on both sides and indications of the source. Local newspaper can print in notepad format the transportation schedules, the addresses and operating hours of the stores, consumer service facilities and so forth, and the plant newspapers--intraplant information. Such a simplified variant of mass dissemination and decentralized (for various personal interests) accumulation of miniformat information, it would seem, would turn out to be a kind of printed analog to the information like the "video text" which is included in the practice of the systems of electronic dissemination of information abroad.

But how does one accumulate these clippings? It is necessary to organize mass production of envelopes or folders for folding minifiles (in essence, inserts of notebooks in the corresponding sizes) which each can fill with the necessary information. Incidentally, these envelopes can also be used for pocket storage of microfiche and numerical minicard catalogues. It would be reasonable to go even further and arrange the output of "diplomat"-type briefcases which are partially or completely filled with these pockets. In these briefcases managers, engineers, scientific workers, educators and so forth could create flexible personal information supplies to satisfy their own needs. On the basis of mass miniprinting publications with the "diplomat" briefcase format one could also create portable minilibraries of reference, political, technical, economic and artistic literature that are combined with flexible personal information supplies. One should also think about creating miniformat textbooks and, on the basis of these, a complete set of training materials. All of us know how heavy the bookbag of a student is (including a working student).

With the existing preference for large-format printed editions and the existing stereotype of information work and other factors that impede us, the solution to the problems that have been raised is not a matter of the moment.

It is necessary to have various kinds of experiments and research. Comprehensive development of domestic miniprinting and micrography is dictated by the development of scientific and technical progress which has taken a turn toward personal computers in recent years.

The proposed direction--the development of managerial minidocuments and extensive utilization of miniformat information sources for the creation of flexible portable personal information supplies--would make it possible in short periods of time without significant expenditures to essentially improve the arrangement of information activity on a large scale, regardless of the availability of electronic equipment. Small-format management displays as extremely simple and everywhere available instruments, make it possible to bring elementary order into management processes in an elementary way.

FOOTNOTES

1. "Elektronika: Proshloye, nastoyashcheye i budushcheye" [Electronics: Past, Present and Future], Moscow, "Mir", 1980, p 229.
2. R. N. Ivanov, "The Micrography Industry," SShA: EKONOMIKA, POLITIKA, IDEOLOGIYA, No 5, 1981, p 94.

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MANAGEMENT DISPLAY USED IN PLANNING INSTITUTE

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 82-87

[Article by A. I. Rabinovich, head design engineer, Giprosvyaz-4 Institute (Novosibirsk): "The Management Display in the Planning Institute"]

[Text] The work of the head engineer of a plan becomes more and more difficult with each year. There are many reasons for this: the technically planned objects are becoming more complicated, greater requirements are placed on the documentation, interrelations with the clients are not simple....

For many years now we have been speaking about the need for modern methods of organizing labor but so far in the work positions of engineers, except for the same old pencils, straight edges and erasers, nothing new has appeared. But still on the desk of the engineer, and especially of the head engineer of the plan, there is always a mass of paper: reference guides, orders, GOST's and so forth. It is not easy to calculate how much time it takes to sort out all these papers and then to look for them again on the desk. But one can state with confidence that it takes a lot of time. The best way out of this situation is to develop systems that make it possible to facilitate the engineer's access to information. Regarding this there is a whole number of suggestions, beginning with cabinets of catalogues and ending with supplies at the work positions. But so far these methods have not been very effective or they have been difficult to carry out. A significantly great amount of success is promised by the management display and the work experience with it at the level of the manager of the institute has caused us to take further steps.

The Planning Institute with its relatively small size, like any other production, has a fairly complicated structure. It consists of technological divisions which specialize in the development of individual parts of the plans, and administrative-managerial and auxiliary subdivisions. The manager of an institute and his deputies are the main coordinators of the activity of the subdivision. And here it is important for the manager to have feedback from his subordinates. When issuing the next instructions the manager should be confident that his preceding instructions have been carried out correctly and completely. Until recently there has been none of this kind of feedback in many areas of the activity of the institute.

After the appearance in EKO in 1980 of G. P. Novikov's article on the system of management using the information display, the Giprosvyaz-4 Institute made an attempt to apply this system under the conditions of a planning institute. It combined simplicity and visibility. And then the system was introduced into the daily activity of the institute. G. P. Novikov, the developer, helped to give the first push for the introduction of the system. Its subsequent development was carried out independently by the institute's personnel--new information card catalogues are being developed, existing ones are being improved and old ones are being abolished.

The cycle of updating the cards is determined by the user depending on the kind of information included on the card and the rates of its obsolescence. The most frequently cycle for updating is a week and the longest is a year or a five-year plan. Control over the updating of the card catalogues is provided by the manager's secretary on a special card, a duplicate of which is found in the card catalogue (Fig. 1). Each quarter the secretary submits to the planning division information about the promptness of the filling out of the cards by the responsible parties, as a rule, the managers of the subdivisions. Tardy filling out of the cards leads to the withdrawal of a certain number of points when summing up the results of socialist competition.

Schedule for updating card catalog

IC No	Name of information card (IC)	Month/date											
		1	2	3	4	5	6	7	8	9	10	11	12
15	1. Planning division Generalized production indicators of institute work	10	10	10	10	10	10	10	10	10	10	10	10
16	Basic production indicators of work of subdiv.	30	-	-	30	-	-	30	-	-	30	-	-
47	2. Bookkeeping Salaries of mgmt. personnel	20	-	-	-	-	-	20	-	-	-	-	-
70	3. Personnel div. Generalized description of personnel	5	-	-	5	-	-	5	-	-	5	-	-
77	Personnel turnover	5	-	-	5	-	-	5	-	-	5	-	-

Fig. 1.

The adaptation of the workers to the card catalogues takes place very quickly and--the most important thing--the participants feel the constant supervision of their activity, regardless of the importance of the tasks they perform.

The filled-in information cards, after being noted on the control card, are placed on the desk of the manager of the institute. Having looked over the information entered on the card the manager places it in the card catalogue on his desk. Subsequently the information is used as needed and--which is very important--without the involvement of the workers who before this were frequently called into the manager's office regarding various kinds of references, figures and clarifications. Frequently the necessary information was not available and the worker had to spend time gathering and systematizing it.

A study of the institute's document turnover, its reporting, and the information used by the institute's manager made it possible to select an efficient makeup for the information card catalogue. As of today the information card catalogue of the institute manager contains about 100 cards. A list of some of them is given. Even this far from complete list shows the breadth of the activity of the institute's information card catalogue. Practice has shown that the card catalogue renders essential assistance when conducting conferences with the institute's manager, preparing papers and job notes and, the main thing, during on-the-spot management. This can be judged if only from the following two cards from the display of the institute's manager (Figs. 2 and 3).

Head engineer of plan	1984	As of					
		Responsible for intro.					
		COURSE OF PREPARATION OF OBJECTS FOR PLANNING					
Vol. PRW 1,000 rbls.	Agree- ments sent	Agree- ments signed	Note on fi- nance	Agree- ments sent	Agree- ments signed	Note on fi- nance	
No.	PIR	No.	PIR	No.	PIR	No.	PIR
Zakharov							
Denisov							

Fig. 2.

Let us give some examples of the use of the card catalogue.

The institute manager conducts his regular planning session. Up to this point he has not invited all of the institute's workers who have had more or less to do with the issue under consideration. But keeping his display at hand it is now sufficient for the manager to call in only the main workers. The questions that arise during the course of the planning session are clarified with the help of information cards, and frequently this information is more reliable and objective than the information that is obtained on the spot from the manager of some service since he is far from always capable of giving a

complete idea of the activity of the subdivision under his jurisdiction on the spur of the moment. As a result the discussion of the question takes much less time, more substantiated decisions are made and the number of participants in the conferences decreases. A greater effect is achieved with less expenditure of time.

Months	Number of objects		Est. cost thou. rbls.		Reduction of est. cost, thou. rbls.	As of	
	Total	Compared	All objects	Compared		All objects	Compared
January							
February							
March							
1st quar.							
April							
May							
June							
2d quar.							
Semester							

Fig. 3

The institute manager prepares a talk for the regular conference or meeting. While previously all the information for the report was prepared by the corresponding services, now in order to prepare reports he uses the information card which contains not only the figures on all of the questions that interest the manager, but also gives a detailed analysis of many of them. The managers and workers of the subdivision are not distracted by sorting out the information for the chief, and their time and his time are saved. The information card also gives much more information than the services could prepare on the spot.

When creating card catalogues for the head engineer of the plant certain existing information cards were used and specific ones were developed. The latter include, for example, the SNIP's that are in effect, documents concerning the organization of planning and research work, documents concerning the course of the conclusion of agreements with clients, technical and economic characteristics of the equipment being used in the plans, and so forth. The work for introducing the management displays into the reality of the head engineer of the plan was begun recently. So far about 10 special information cards have been developed. About 20 cards developed for the card catalogue of the institute manager are also used in this card catalogue.

The card catalogue of the head engineer of the plan is especially important when the head engineers are separated from the divisions. Not having engineers under his direct jurisdiction, the head engineer of the plan is frequently forced to sort out the information he needs independently or to ask for it from the subdivisions which cannot always answer quickly.

The economic activity here, as with the utilization of the card catalogue of the manager of the institute, is achieved through the efficiency of obtaining data (a reduction of the time for searching), and the reduction of the number of errors when making decisions (certain decisions are usually made by the head engineers from memory, and when precise information is not at hand). No less important is the coordinated information interaction of the services.

The information card catalogue is yet another step toward advancing the art of production, and improving control and distribution of duties among subdivisions and workers. This is the policy in the business correspondence and the activity of the entire organization.

LIST OF INFORMATION CARDS OF INSTITUTE MANAGER (Fragment)

I. General Reference Data

1. Schedule for work of institute's services.
2. ATS codes.
5. List of enterprise standards in effect in institute.

II. Planning-Reports on Production-Economic Activity

15. Generalized production indicators of the work of the institute in current year.
16. Basic production indicators of the work of subdivisions in current year.
17. Condition of production with respect to most important kinds of work in current year.
18. Course of preparation of facilities for planning.
23. List of documents and jobs being monitored.
33. Introduction of computer equipment into planning estimate work.
35. Plan of measures for scientific organization of labor.

III. Financial and Economic Activity

44. Growth rates of average wages and earnings.
52. Data concerning reduction of estimated cost of construction.

IV. Economic and Material Resources

55. Capital availability and normatives for basic kinds of material resources.
56. Provision of material resources that are in critically short supply.
63. Consumption of electric energy.
66. Provision of organizational equipment, including computing and computer equipment. Provision of reproduction equipment.

V. Personnel

73. List of veterans and honored veterans of institute. Privileges granted to them.

- 74. List of participants in the Great Patriotic War, pensioners and army servicemen. Privileges granted to them.
- 80. Increased qualifications of management staff of institute and divisions.
- 84. Anniversary dates of associated organizations, main board, city and their management.

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MANAGER'S CARD CATALOGUE DESCRIBED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 87-88

[Article by I. L. Dyuldin, senior engineer for personnel of the Giprovyas-4 Institute (Novosibirsk): "Undoubted Advantage"]

[Text] The information card catalogue of the institute manager includes 17 information cards under the heading "Personnel" which are updated at various intervals (monthly, quarterly, annually).

At first glance at the card catalogue one gets the impression that it is unnecessary and that it takes large expenditures of labor and time to keep it up. Indeed, at the time of the introduction of the card catalogue workers in the personnel division had to exert a good deal of effort to enter information regarding various kinds of personnel activity and a certain amount of time is spent updating it. But subsequently, in daily work, the cards begin to provide for a great savings of time and labor when it is necessary to give the manager information for drawing up various monthly, quarterly and especially large annual reports.

Fairly frequently the manager of the enterprise needs figures concerning the personnel composition, labor turnover, their increases in qualifications and their anniversaries. Previously in order to give this information it was necessary to go through the orders regarding personnel, the personal cards and other sources. By periodically filling out an information card and making all of the changes in it, the personnel division now has practically all the information which makes it possible for the manager to obtain it any moment from his own card catalogue. So one can say with confidence that enterprises which do not have the ASU "Personnel" the card catalogue will produce an undoubted advantage.

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SCIENTIFIC RESEARCH CHIEF USES MANAGEMENT DISPLAY

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 88-90

[Article by V. I. Shcherbak, engineer, Scientific Research and Planning-Technological Institute of Machine Building (Kramatorsk): "The Management Display of the Division Chief of a Scientific Research Institute"]

[Text] The management display of the division chief of a scientific research institute was developed after careful study of G. P. Novikov's article in EKO regarding one of the divisions of our scientific research institute where it was tested. The display systematizes the work of the division chief, concentrates all kinds of information, makes it visible, and helps concentrate the attention of the manager on the most important management issues and at the same time does not overlook secondary ones. The visibility of this kind of information makes it possible to manage the division efficiently while spending less time.

The management display of the division chief consists of three headings: 1) general reference data; 2) planning and reports; 3) data concerning labor resources.

Heading 2, for example, contains the following information: the thematic plan for scientific research work (for 5 years), the certificate of research projects carried out by the division, Order No 1 for the institute for the year, Instruction No 1 for the division, the TEP [technical and economic indicators] of the division for the five-year plan, the TEP for the division of the planned year, schedules for authors' supervision and confirmation of the TEP for previously introduced work, the performance of scientific research work and its stages, plans for work of the scientific council, sections of the scientific council, seminars of the division, plans for work of the division chief with managers of research projects, work for increasing the scientific skills of the workers, a list of dissertation areas, and a plan of basic measures for work with personnel.

Forms have been developed for presenting the information and periodically updating it, and a person has been made responsible for updating the information.

Some of the forms of the management display are report documents of a collective nature; but this does not rule out documents from primary reports.

Several new forms of documents have been developed especially for the management display of the chief of the scientific division.

Thus the certificate of the project is a document which accumulates information over several years. It reflects: the name of the subject, the order-contract, the code of the subject, the client (address), the leader and responsible worker of the project, the substantiation for the development of the project, the time periods for carrying it out, the volume of financing for the various years and the economic incentive fund. Also indicated are the stages in the fulfillment of the project, the volume of their financing and the time periods for carrying it out. In the time periods for carrying out the project and the stages of completion are the planned and actual time periods for fulfillment and the number of the document under which the project (stage) was opened. In the event of a change in the time periods for the project (stage) a paragraph is included entitled "Substantiation for the Change." The certificate for the project reflects the effectiveness of its introduction: the economic effect, the reduction of production cost, the reduction of labor-intensiveness, savings on material and energy resources, and the release of workers. The effectiveness of the introduction of the project is the preliminary, expected and actual one for the various years, indicating the number of the document that corroborates the effectiveness. Also indicated on the certificate of the project is the income of funds, expenditures for carrying out the project and expenditures of the working time of the workers in the various positions.

The document entitled "TEP of the Division for the Year" contains such indicators as the volume of scientific research work in the estimated cost, including for jobs financed under the unified centralized fund and economic agreements, the quantity of work performed and introduced, the number of workers, the wage fund, the economic effectiveness from introduction, the effectiveness per 1 ruble of expenditures, the reduction of production cost and labor-intensiveness, savings on material and energy resources, the release of workers, the creation of economic incentive funds, the number of publications and lectures, expenditures on business trips, kinds of incentives for the division and the utilization of the supply of working time.

Technical and economic indicators are taken into account for the division as a whole, including for the various subdivisions. The amount of the indicators is reflected for the year and for the various quarters (planned and actual).

The "Schedule for Authorial Supervision and Confirmation of the TEP for Previously Introduced Jobs for the Year" contains: a list of scientific research work, the schedule-order, the last name, first name and patronymic of the leader, proposed and actual indicators, the date of their approval and the number of the document. The proposed and actual indicators for introduction include the economic effect, reduction of the production cost, labor-intensiveness and metal-intensiveness, savings on material and economic resources, and the release of workers.

The "Dynamics of the Personnel Composition" reflects changes in the positions and salaries of workers in the division over a period of several years.

The management displays, it seems to us, could be introduced in all scientific research institutes.

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MINIATURE INFORMATION SOURCES DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 90-91

[Article: "Small-Format Publications: From the Prayer Book of Ivan Fedorov to the Minibinder"]

[Text] Miniaturization of information sources has been blazing a trail for itself since ancient times. The ancient Roman thinker and orator Cicero read Homer's "Iliad," the text of which was placed on the shell of a Greek nut. Ivan Fedorov, following the famous "Apostle" in 1565 published a pocket edition of a "prayer book" intended for studying grammar.

A. S. Pushkin was extraordinarily gladdened by the publication of "Eugene Onegin" in a miniature variant. Small-format books were frequently the companions of N. V. Gogol on his travels. In 1841 Gogol wrote: "It would be good to publish 'The Inspector General' in a miniature format." V. G. Belinskiy in a review of an eight-volume miniature edition of Krylov's "Fables" (1855) wrote: "This publication of Krylov gratifies us also in the respect that it can produce in us a devotion to miniature editions."

About 100 years ago there appeared the first pocket records which have remained practically the same up until the present day--many calendars. In the city of Novyy-Sad (Yugoslavia) a museum of miniature books was opened which displays publications from 30 countries of the world.

In our country we have various miniature publications of artistic, political, reference and sports literature (see, for example, NAUKA I ZHIZN, No 4, 1984, pp 108-112). The penetration of miniprinting into various spheres of human life and activity is constantly expanding. Small volumes were even present on board the space ships.

In addition to miniature printing, various additional methods of reducing information sources are being put into practice: folding and origami. For many years the Leningrad teacher Yu. Orlov has been cutting out of the newspapers and magazines the material he needs and pasting them in pocket-sized notebooks of 100 x 140 millimeters. His folding library includes more than a hundred sources. Incidentally certain periodical editions deliberately print sections that are arranged so they can be clipped: "In the Notebook of

the Propagandist," "For the Card Catalogue of the Lawyer," "Household Encyclopedia" and so forth. The periodical press has also described various ways of streamlining the use of notebooks in information work and in business activity, particularly in EKO No 7 for 1981 and No 1 for 1984.

The peculiarity of the origami method of miniaturization, which was borrowed from the ancient Japanese art of folding figures out of paper ("origami") is the bending or folding of a sheet of paper along all lines of a bend at the same time. For example, pocket schedules of the Moscow subway are bent and folded this way.

On the whole the utilization of miniature information sources has been partial up to the present time, and they have been used more as curiosities and souvenirs for collection.

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EFFECTS OF ALCOHOLISM ON WORK PERFORMANCE EXAMINED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 93-94

[Introduction to articles that follow: "Economics, Health, Discipline--And Alcohol"]

[Text] EKO addressed the problem of the economics of alcoholism for the first time more than 10 years ago (No 4, 1974--"A Sober View of Drunkenness"). The response was a flood of impassioned letters and requests that we continue the analysis of this problem. We are now turning to it under different conditions.

In April 1985 the question of fighting against intoxication and alcoholism was discussed a meeting of the Politburo of the CPSU Central Committee. Soon after this they published the decree of the CPSU Central Committee, "On Measures for Overcoming Intoxication and Alcoholism," the decree of the USSR Council of Ministers, "On Measures for Overcoming Intoxication and Alcoholism and Eradicating Home Distilleries" and the ukase of the Presidium of the USSR Supreme Soviet, "On Stepping Up the Fight Against Intoxication" (PRAVDA, 17 May 1985). These important political documents gave a harsh evaluation of alcoholism as a socially dangerous evil and earmarked a complex of measures for overcoming it.

A good deal is being done in the fight against this evil. Thus recently labor collectives and party committees have taken stronger actions against violators. A ramified network of drug abuse institutions has been created. A considerable amount of experience has been accumulated in fighting against intoxication at work and at home, and experience has been accumulated in preventing and treating alcoholism in the sphere of public health. On the other hand, certain negative phenomena related to the consumption of alcohol have become even worse in recent years, and this requires serious thought.

The key to this thought is an in-depth analysis of the phenomena of real socialism contained in the documents of the party's central committee plenums of recent years. Thus at the June (1983) Plenum of the CPSU Central Committee it was pointed out: "Developing a new man is inseparable from the most energetic fight against intoxication, hooliganism and idleness, speculation

and theft of socialist property, bribe taking and greediness. It would be incorrect to see in all of these abnormal phenomena, which cause concern and justified indignation on the part of the workers, only 'remnants of the past' in awareness and behavior of the people. The reasons for many of these 'defects' should be sought in today's practice, in the omissions of various workers, and in the real problems and difficulties of our development...."

We are returning to a discussion of the socioeconomic problems of alcoholism, which is inspired by the scale of the movement in the country against intoxication and for a sober way of life.

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SOCIAL FACTORS IN ALCOHOLISM DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIIA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 95-127

[Article by V. A. Bykov, deputy editor in chief of EKO: "Seeing the Problem in All of Its Complexity"]

[Text] The problem that is bothering us is many-sided.

Alcohol as a food product and at the same time as a narcotic, the typology of alcoholism and various "models" of intoxication, its epidemiology as a disease, the social conditions for the development of everyday intoxication and alcoholism, its statistics and dynamics, its multifaceted destructive influence on the economy and morality, and, finally, international cooperation in this sphere and the comprehensive system of measures that can alleviate and in the future eliminate the negative influence of alcoholism on the life of the society--all these are separate subjects of immense significance, and each of them awaits its researchers. Our magazine cannot encompass the entire complex of the aforementioned problems.

But economics and management are legitimate subjects for EKO. And the influence of intoxication on the economy is a generally recognized phenomenon. The role of management decisions is also obvious here. Therefore we consider it appropriate to express certain ideas about this subject, the more so since the EKO mail is bringing in letters from readers with the corresponding questions.

Let Us Try To Calculate

The conviction is widespread that the "economics of alcohol," that is, the mobilization of funds with the help of trade in it is extremely advantageous and there is no possible way to reduce it: alcohol provides money to live on.

But there are two sides to any coin. So let us turn this over.

What kinds of harm can one speak about with respect to intoxication? The first thing that strikes one is absenteeism. Let us give a couple of facts from the oblast and central newspapers, mainly for 1983-1985.

Amur Oblast. The night shift of cardboard dryers at the pulp and paper combine along with the foreman were all drunk. Losses amounted to more than 39,000 rubles.

Saratov Oblast. At the Pugachev Grain Combine it was necessary to halt the equipment: the storehouse would not accept the prepared products and the loaders could not be moved because they were completely drunk. It was mainly drunkards who were absent--117 man-days were lost. If one takes into account that there are only 160 people in the collective the picture does not look good.

Sverdlovsk Oblast. During 10 months of 1983 on the Znamenskiy Sovkhoz there were 669 absences, which was 180 more than in the preceding year. Because of this they failed to receive 30,000 rubles' worth of products.

Magadan Oblast. Losses of working time because of intoxication were especially great in the Selkhozkhimiya Association: 69.3 absences per 100 workers in 1982, and 42.5 during the first half of 1983.

Kiev Oblast. At the Krasnyy Ekskavator Enterprise alone during a half-year four excavators were "drunk up" (not manufactured because of drunkenness)....

According to the calculations of Prof B. M. Levin, approximately 1 percent of the men employed in industrial enterprises and construction sites fail to show up at work each day because of drunkenness. Research conducted in various regions of the country shows: labor productivity decreases by 15-30 percent after payday, holidays and days off.

There are 24 paydays a year, six to eight holidays, and 52 Sundays. An increase (or reduction) of labor productivity by 1 percent today means a total of more than 1.5 billion rubles in national income. This means that "hangovers" cost approximately 7 billion rubles each year.

As articles from previous years show, before now Soviet economists have given comparable figures for the national income that is not received. Thus according to calculations made by Academician S. G. Strumilin, "sobering up" the sphere of labor would increase its productivity by 10 percent. This means tens of billions of rubles.

Let us recall these figures: we still need them.

Another kind of registered losses involves road and transportation losses, where not only does technical equipment break down and cargoes go to waste, but people also die. Here we again turn to the facts announced in the press recently.

Lvov. In 1983 workers of the GAI arrested 2,200 drivers in 9 months for driving while intoxicated.

Yuzhno-Sakhalinsk. During 10 months of 1984 intoxicated drivers were involved in 148 accidents on the roads of the oblast in which 158 people were injured and 20 were killed.

Uzhgorod. In 1983 intoxicated drivers had 197 traffic accidents here, in which 41 people died and 209 people sustained various kinds of injuries. Police officials disclosed 3,932 cases of driving while intoxicated. Uzhgorod is a city with 100,000 residents, and Yuzhno-Sakhalinsk--150,000. It is quite obvious that Uzhgorod and Yuzhno-Sakhalinsk are not the most dangerous automotive centers in the country.

In the country as a whole, as PRAVDA has announced, in 1982 800,000 people were arrested for driving while intoxicated and their driver's licenses were revoked.

Of course road accidents happen with sober drivers as well. But if one were to eliminate from the sad road statistics all accidents caused by alcohol, the volume of losses and, the main thing, the number of deaths and injuries, would at least be cut in half. It is difficult to evaluate traffic accidents in rubles, but it is quite obvious that the cost runs into many tens of millions.

Let us take a look at another item in "drunk" losses.

"There are tens of thousands of fires in the country each year, people die, and millions of rubles' worth of material is damaged. Nine out of 10 fires are in residential buildings, dachas and in trailers. Seven out of every 10 people who die are stupefied by alcohol" (PRAVDA, 14 May 1984).

In 1983 in Sverdlovsk 13 people were burned to death because of drunkenness. In 1984 the number of drunks who died in fires was already 26. Firemen even have the term "drunk fire" (VECHERNIY SVERDLOVSK, 8 January 1985).

"Approximately two-thirds of all the fires are "drunk fires." In at least half of the cases the victims are children. For every person who dies in a fire there are dozens who are burned, and for every 1,000 people in the country there is one severe burning injury each year" (SOVETSKAYA ROSSIYA, 27 January 1984). One injury per 1,000 people means 270,000 tragedies each year! There is no point in trying to express these tragedies in material form, but one can imagine the scale of losses of valuables that are burned.

We have considered only three items in losses: absences in production, automotive accidents and fires. And the account has run up into the millions and billions of rubles.

But there are many more channels of losses.

Intoxicated workers damage equipment, sometimes the most valuable equipment which is difficult to replace.

The quality of products deteriorates even with small quantities of alcohol in the worker's blood. This has been confirmed by thousands of experiments.

Labor turnover increases appreciably because of drunks.

Social insurance has large expenditures to pay for hospital costs whose real (though not always clear) causes are diseases and injuries provoked by alcoholism.

The society is forced to maintain and dynamically expand a broad network of drug abuse institutions, therapeutic labor dispensaries and units of a general therapeutic profile, and we are having to open up more and more special schools and children's homes for the children with inherited pathology, and we must also increase the number of workers in public health agencies.

Soviet criminal and legal science considers alcoholism to be one of the main reasons for crime: murders, thefts, rapes, burglaries and hooliganism. On the scale of the country this is again losses of many millions of rubles.

The incomplete return from the immense capital investments both in production and in the agroindustrial complex is explained to a significant degree by those obstacles which are caused by alcohol: under its destructive influence there is a development of indifference toward work, and a lack of initiative, and there are more cases of breakdowns of technical equipment, losses of livestock, violations of technology and defective work. The very way of life is deformed under the influence of vodka.

Obviously, the readers can name many more kinds of losses that are related to intoxication. Among them are those which are difficult to express in material form, but their existence is quite obvious. These include a shortening of the life span of the productive part of it for people who drink too much. E. A. Babayan, one of the managers of the USSR Ministry of Public Health, wrote: "The most important and saddest statistic: the life span of the alcoholic decreases by approximately 20 years and the average alcoholic does not live beyond 55."¹ This means that society fails to receive discoveries, inventions and other products of the human genius which are stillborn because of alcohol. This means an influence on the overall demographic situation which cannot be evaluated but is clearly negative.

The World Health Organization (WHO) points out the global nature of the alcohol problem and the considerable difficulty of solving it within national frameworks.

"In a report the WHO committee of experts on medicinal dependency emphasizes that in recent years the levels of immoderate consumption of alcohol and the death and disease related to its influence have increased sharply in many countries."² "The WHO wants the whole world to know that the consumption of alcohol creates problems for the society and it wants the governments to be aware of these problems and develop an effective policy to eliminate them. The WHO wants to convince the country in which problems related to the consumption of alcohol are just beginning to appear that they can do something even now to prevent them" (ZDOROVYE MIRA, No 12, 1982).

Two Groups of Factors

The authors of several of the letters that have come into the magazine recognize that they have not found in literature available to them a social

analysis of the causes of the spreading of alcohol dependency in our society. "This vice did not drop out of the sky, neither the weaknesses of the drinker nor the remnants of the past explain it completely, and there obviously are objective reasons, is this not so?"--they ask in these letters.

It undoubtedly is. In the introduction we quoted the instruction of the June (1983) Plenum of the CPSU Central Committee which is very important for an understanding of the problem: no, it is not only remnants of the past, mistakes in today's practice and the real problems and difficulties of our development are also to blame.

Let us turn to an analysis of these.

In alcoholism as a disease and in heavy social drinking which precedes it medical-biological and social phenomena are closely interwoven. We shall not discuss the medical aspects: they are outside the competence of our magazine and, moreover, there is not sufficiently extensive literature on them. Let us consider the social factors. In order to understand the effect of these factors we suggest dividing them into two groups:

- a) general ones, which create only conditions and a situation which is favorable for the development of various forms of deviant behavior, including drunkenness;
- b) specific ones, which contribute to the development of drinking itself, which in a certain number of cases grows into the disease of alcoholism.

Among the general socioeconomic and sociopsychological factors that contribute to the development of daily drinking we would include the following.

1) The underdevelopment of the spiritual demands among a certain part of the population. workers with low qualifications and a low level of education, mainly among the immense army of auxiliary workers. For this category the very idea of leisure is extremely limited and most frequently amounts to a readiness to drink, to chat with other drinkers, to play cards or play dominoes. In other words, a low level of general culture and underdevelopment of spiritual demands are reflected in an inability to use their leisure beneficially.

2) The increased amount of leisure itself. With a five-day work week most of the workers have about 100 days off per year and student youth, taking into account the summer vacations, have even more. For many the work shift ends at 4 in the afternoon. After that they are on their own. While it is a great social achievement of the Soviet system, the increased amount of leisure requires a well-thought-out system for using it, and it must be a system which is extremely differentiated, taking into account the age, education, interests, national traditions, time of year and so forth. Such a system, directed not simply toward satisfaction, but mainly toward development, toward increasing demands, is being created too slowly. As a result, the leisure, which is still a great social benefit, in certain cases is transformed into a nutritive environment for antisocial behavior, including drunkenness.

- 3) The breakup of the traditional Russian extended families which include three generations with their strict control over the behavior of each member, especially youth. The mass appearance of so-called nuclear families which consist only of the husband, wife and children. An immense social good--a separate, individual apartment--in a number of cases is turning out to be not only good; it separates the family from public influence; under these conditions it is impossible for the wife alone to keep her husband away from negative influences and actions. Previously this was taken care of by the large family which relied on the authority of the elders and the threat from the church, which was vitally interested in making sure that the family kopeck went not to the tavern, but to the church offering plate. Deprived of daily supervision the unstable elements easily get out of social control altogether, entering the field of vision of the public only as subjects of so-called deviant behavior, that is, violators of the established order.
- 4) The high payment for unskilled labor which paralyzes the ambition for occupational growth and education. Such payment which is not in line with the social usefulness impedes the spiritual development of the large army of unskilled workers and creates conditions (there is money, there is leisure, there are no developed interests) for primitive and not always safe forms of spending leisure time.
- 5) The disproportion in the amount of free time of men and women, which is linked to the underdevelopment of the sphere of service.. and the unequal participation of the two spouses in housework and the rearing of children. Overloaded with concerns about the home and the children, the wife rarely accompanies the husband during leisure hours. Their interests cease to coincide--and the husband looks for diversion outside the family and a long way away from its control.
- 6) In many regions of the country occurs the prevalence of only male (the North, new construction sites and so forth) or only female (textile cities and so forth) population. This demographic one-sidedness contains many more factors and offers many more occasions for drinking than does a balanced composition of the population.
- 7) The conciliatory attitude toward negative actions in production which are related to the terrible organization of labor and the passion for "good" reports. Violators of discipline do not receive strict censure on the part of the administration everywhere for it frequently prefers not to take note of absentees and, moreover, sometimes even sees in them a large reserve for shock work and overtime work. Having gotten away with yesterday, tomorrow they will willingly work overtime in order to cover up the gross blunders on the part of supply and the administration itself.
- 8) A certain one-sidedness in the existing system of criteria for evaluating an individual. For several decades purely industrial criteria have prevailed and in certain cases have even suppressed moral criteria. This has also been reflected in public opinion. It has become fairly demanding of a person's business qualities and unjustifiably tolerant of his moral image. Such extreme rationalism could not but be reflected in a system of higher spiritual values and facilitated the establishment of certain negative features in

behavior. Now the one-sided evaluations are steadily, although slowly, being crowded out by more intelligent ones.

9) The inadequacy of the forms of educational work which existed in the past and which did not sufficiently take into account all the critical and complicated nature of the processes taking place in public awareness on the eve of the 1950's and 1960's when the party was developing a struggle for strict observance of socialist law and order, norms of state and party life and principles of collectivity in management. Today the errors in the sphere of education are being manifested in new forms. The weakness of school and family education, which poorly take into account all the contradictoriness of influences which fall upon youth every hour. The need to improve the essence and forms of political and educational work have been noted in many party decisions of recent years. Very precise words were written in the decree of the June (1983) Plenum of the CPSU Central Committee, which demanded that moral health and social optimism be developed. An underestimation of these qualities facilitates the penetration into a certain part of the society of interests and forms of behavior that are not appropriate to the Soviet way of life, including drunkenness.

10) The overall urbanization of life which was typical for the city population and the overloading of nerves, the need to unwind, to relax, to overcome the anonymity of the individual in the urban flow, to appear in a small group. Because of many of the aforementioned factors, this small group was most frequently not a group of colleagues with common interests in production, but a random situational group which was rapidly transformed into a group of fellow drinkers. Such a small group has its own stereotypes of behavior, and it is possible to assert one's individuality in only one way, which is not the best.

11) The reduction of the responsibility of each individual worker for his own personal participation in the production process which was typical of agriculture. The replacement of rural workers with city dwellers, for which there was not always a real need, and the fact that they had not completely overcome the habit of following their every step--all this changed the work situation for many rural residents. The immense advantage of a planned economy which rid the rural population of hunger during the most unproductive years at the same time created loopholes for idlers who are confident that the society will always feed them without even asking if they themselves had made any contribution to the national treasury. And in places where the organization of rural labor turned out to be low there was a situation of irresponsibility and a mass of "free" time--and this too became a nutritive environment for drunkenness.

We have listed several social factors necessary for an understanding of the situation which created favorable conditions for the development of daily drinking.

But it is also possible for it not to develop and not to progress. In fact neither the increased amount of leisure nor the high wages for unskilled labor know the disproportions in the amounts of free time for men and women nor the weakening of control on the part of the family nor the shortcomings in

educational work nor the urbanization in and of themselves necessarily lead to drunkenness. They only create the appropriate situation; it is as though they weaken the resistance of the healthy social organism and facilitate the penetration into it of the infectious beginnings of drunkenness. In order for these infectious beginnings to develop and become active it is necessary for another group of factors to be in operation--specific ones which are directly related to alcohol. Of these factors we could single out three:

- 1) planned growth of production and trade of alcohol, which led to its increased consumption;
- 2) the conciliatory attitude toward the bad traditions of the past;
- 3) ignorance about the properties of alcohol itself.

Let us consider these factors.

Quite naturally, in a planned economy the production of alcohol, like the production of any product in mass demand, is planned. But the planning of its consumption should differ from the analogous operations that take place with milk, meat and vegetables. For food products there are scientifically substantiated norms of consumption (see EKO, No 2, 1982) which do not and cannot exist for alcohol. In our opinion, the Ministry of Public Health can and should be the only institution that has the right to give planning agencies control figures for the production and sale of alcoholic beverages which will be relatively safe for the society.³ It is precisely here that we see one of the advantages of a socialist planned economy as distinct from the uncontrolled supplying of alcohol to the population by private firms which produce it, the fight against which was abandoned long ago in many capitalist countries.

Trade in alcoholic items increased in our country from 1940 through 1980 7.8-fold.⁴ Let us take the middle year of this 40-year period--1960. During this year the commodity turnover during the first quarter per one work position in specialized stores amounted to: bread and bakery items--23,300 rubles, meat and fish--26,200, fruit and vegetables--14,600, culinary and semimanufactured products--17,200, and wine and alcohol items--44,700 rubles.⁵ Clearly it was advantageous for trade to develop the wine divisions first of all: they produced the greatest commodity turnover in such an important column of the statistical reports as "increase in sales of the most important consumer goods." Trade stimulated production, and it stimulated demand. "Production precedes demand, supply overtakes demand with force" (Marx, K., and Engels, F. "Soch." [Works], Vol 4, p 101). They were not able to correct the trade and planning agencies in time and instead of taking the troublesome path of improving the quality and assortment of goods and expanding consumer services, they stubbornly clung to the easy path of inflating commodity turnover through a simple item--trade in wine and liquor.

Such was the first specific factor which acted as a stimulator for many others named above: the growing availability of alcohol. WHO experts even today are devoting the most serious attention to this. According to their

investigations, the factor of the availability of alcohol reduces the number of sober people by half and doubles the number of alcohol abusers.⁶

The second specific factor was the favorable attitude toward bad traditions of the past. When speaking about "bad" traditions we wish to emphasize that there were also extremely intelligent traditions, which prohibited the drinking of wine for the bride and groom, for workers during harvest days, and so forth.⁷ The tradition of toasting guests was previously limited to a few holidays, and the majority of families did not have the material capabilities of buying alcohol for any daily meeting. The growing income of the family with the growing availability of alcohol and the inadequate diversity of cultural demands contributed to the renewal of traditions from the past which were certainly not the best. Thus there was a strengthening of the tradition which linked respect for a guest to drinking, the undertaking and completion of any large project--to drinking, any anniversary of a private or public nature--to drinking.... On the purely tavern tradition of drinking hard liquor straight they artificially impose the custom which is typical of nationalities who drink mainly light dry wines--the ritual of numerous "compulsory" and "eloquent" toasts. For the family all this, as a rule, is bothersome, expensive and dangerous, but--it is the tradition. "What are we, worse than the rest of them?..."

Thus was formed the stereotype of the behavior which is used for justification when referring to age-old customs, and, moreover, the national traits of the Russian people. But this is a lie! The many centuries of the history of Russian life are filled with an unequal struggle between the working peasant people and those who "distilled" wine, shipped it in and sold it to the people to get them drunk. For centuries the Russian peasant considered wine (most of Russia did not know about grape wine; they called wine distilled grain, what would now be home-distilled vodka) to be the work of the devil, and they considered innkeepers and tavern owners to be beasts without a conscience, people who catered to drunks, who were worthy of censure and pity. And the fact that they actually did drink a good deal--one must understand this as a result of the inescapable poverty and indignity, the Asiatic servitude in which the Russian people lived for centuries. Unfortunately, on the basis of a false presumption about the "national tradition" there follows the conclusion that drunkenness is a remnant against which it is pointless to struggle: "It will live as long as it lives and it will die out when it dies out...." It is very important that a clear-cut evaluation was given to this approach in the decree of the CPSU Central Committee, "On Measures for Overcoming Drunkenness and Alcoholism." It called for eradicating the groundless view of alcohol as an inevitable and insurmountable phenomenon.

This question is extremely fundamental for the answer to it predetermines the position of the community: if drunkenness is not a remnant that is dying out but a phenomenon which is carried on because of social differences and contradictions, the fight against it should be continuous and should be waged in a situation in which its dynamics and suppression are monitored.

The third specific factor which is impressive in our day with our abundant supply of information is the ignorance of a considerable part of the population concerning the real properties of alcohol. Its dosage, its toxic

destructive effect on the biological mechanisms, the insidious patterns in becoming addicted to it, the special danger for the young organism, the probability of heredity catastrophes and, finally, the kinds of drug abuse assistance--all these even today are in need of extensive and intelligent popularization, primarily through the system of school education and the powerful channels of television.

Such, in our understanding, are the main factors which determine the dynamics of excessive drinking and alcoholism during past decades. Obviously different ways of organizing this information are possible and it is possible to have different approaches to analyzing the factors that have made alcohol abuse a fairly widespread phenomenon. By presenting our point of view we wanted to give the readers material for thought and, perhaps, also objections. We would like to emphasize only one principally important idea. All--we repeat all of the aforementioned factors can be changed. They are not fatal. And this inspires optimism.

The Two Extreme Positions

Above we discussed the ignorance about alcohol on the part of a considerable number of the population, which cannot be overcome by fleeting remarks from physicians in the local and central press. It is necessary to have a comprehensive system which includes primary, secondary and higher education as well as continuing daily activity on the part of the all-union voluntary society for sobriety. The tradition of "social drinking" which is becoming established instead of this only makes the temptation of alcohol worse.

There is a naive confidence that regarding the question of drunkenness everything is extremely clear and there is no need to set any boundaries. Well--they drink. Well, so what? There are places for them to sober up. They have the corresponding commissions in the enterprises and in the local soviets. It is necessary to orient the labor collectives toward intolerance of each specific drunk and to discover the people who are suffering from alcoholism and treat them--and the entire "problem" will disappear. In the extreme case it would be necessary to take some 'decisive' measure: prohibition, a card system, severe punishment for drunkenness and so forth. Such an approach is a gross simplification and it does not take into account the multitude of factors which actually exist and which we are bringing up in this article. It presupposes a battle against a concrete person--the drunkard, and not against a phenomenon--drunkenness.

There is also the opposite belief that concerning the question of alcoholism everything is so unclear and confused that there is no point in trying to deal with this problem with the means at our disposal today. In our countries national committees have been created, programs, have been developed, scientific works are being published, sobriety societies are being created, newspapers and magazines are being published for sober people--and what is happening? They still drink there and the losses are still measured in the millions. So what is the point of going into it?...

This is the approach of defeatists who do not wish to burden themselves either with an analysis or the allotment of resources or an organization of forces.

Their attitude toward the problem of drunkenness is merely sympathy which obligates them to nothing.

Today both of these extreme positions have been deemed to be groundless. "The measures that were earmarked previously for eliminating drunkenness and alcoholism are not being carried out satisfactorily. The fight against this socially dangerous evil is being conducted in spurts, without the necessary organization or consistency," it says in the aforementioned April decree of the CPSU Central Committee. Moreover a serious scientific study of the problem of drunkenness and alcoholism in a developed socialist society is critically needed. Sociologists are deeply in debt here.

On Certain Delusions

From the numerous repetitions there has developed the living conviction that any restrictive measures, including regulation of the sale of alcohol, right down to introducing national, regional or temporary "dry laws" have always and everywhere produced only negative results. At the basis of this conviction lies, on the one hand, a superficial knowledge of the historical facts and, on the other, an uncritical acceptance of the sad experience of the majority of capitalist countries where influential private firms which produce alcohol and also underground gangster syndicates have actually undermined any attempts to restrict trade in alcohol. It does not make sense to consider this "experience" inevitable for socialism. We are certainly not writing about this because we see the solution to all problems in prohibition. It is simply that in the broad attack on the enemy one cannot forget about a single one of the kinds of weapons: anything may be suitable. And in going through the alternatives in the complex of measures one cannot simply dismiss restrictive measures. The mass media have greatly compromised them with its scornful attitude. Even in specialized literature they are glad to go into the 18th Amendment to the U.S. Constitution and all the details of the failure of the "dry law" there, but nothing is said about the documented positive experience in fighting against drunkenness in Russia and the USSR before 1925 and also the independent, repeated restrictions which have produced clearly positive results which have been introduced in individual cities and villages of the RSFSR on their own initiative during the past 10-15 years. A serious social analysis of these relatively recent attempts, particularly the experience of Naberezhnye Chelny are much more important for us than a knowledge of the alcohol scandals from 65 years ago in the United States.

Incidentally, let us dot the i. The dispassionate attitude toward restrictive measures for which we are calling and an experimental study of these which we would consider useful have nothing in common with an unquestioning belief in the "dry law" which is now being encountered more and frequently. A lack of desire or an inability to see the problem of drunkenness in all of its depth and complexity leads to simplistic recommendations: introducing a "dry law" in the USSR immediately and everywhere! The categorical nature of this demand and the lack of desire to make the corresponding calculations, and also attempts to ascribe an inappropriate nature to the sobriety movement in individual places--all this causes reaction which is opposite from what is desired, something we can only regret.

Another widespread delusion is the belief that we drink "moderately" so that there is nothing to be especially concerned about. If by "moderately" we mean less than in the most alcoholic countries of the world--France, Italy, Switzerland and Canada--then yes, on the whole we drink less. But when it comes to strong straight liquor--we drink more.

Not long ago Prof B. M. Levin, a recognized authority in this area, was able to give the consolidated data concerning the consumption of alcohol in several countries of the world.⁸ Here are these figures.

Table--Consumption of Alcoholic Beverages by One Resident Per Year in a Number of Developed Countries: Total (all kinds of alcoholic beverages translated into liters of 100 percent alcohol) and Individually --in Liters of Wine, Beer and Strong Alcoholic Beverages

<u>Countries</u>	<u>Total Consumption</u>	Including:		
		<u>Strong Liquors</u>	<u>Wine</u>	<u>Beer</u>
France	16.9	2.7	102.0	40.3
Italy	13.9	2.0	111.0	15.6
Switzerland	11.5	2.1	51.0	74.8
Czechoslovakia	9.0	2.6	14.0	140.0
Canada	8.8	3.6	7.8	85.6
USSR	8.5	4.2	25.9	22.9
United States	8.2	3.2	12.1	86.3
Finland	6.4	3.4	4.5	52.8

The table makes it possible to classify the countries according to whether they drink mainly "wine," "beer" or "hard liquor." From the comments of Professor Levin that go with this table we can make one extremely significant observation. If one considers the figures for the USSR in their dynamics, say, for the past 10 or 20 years, one can see that the increase in the consumption of grape wines and beer was not accompanied by a reduction of the consumption of hard liquor (as was expected by certain specialists). Beer and wine certainly did not crowd it out, but were simply added to it. Let us remember that this is a very important circumstance in the system of arguments for one or another structure of consumption of alcohol. Arguments about this structure--which is "safer"--will be academic if they do not have as their goal reducing the total per capita consumption of alcohol. This is precisely the goal set for all states by the World Health Organization. Let us add that the table unambiguously shows that we drink the most hard liquor (40 proof and more) in the world.

There is another delusion which is based not on analysis, but only on frequent repetitions. This is the conviction that any reduction of the trade in hard liquor will automatically lead to an equivalent increase in home distilling. This is far from being the case. On the contrary, statistics show that home distilling increased along with the changeover from prohibition of alcohol to the monopoly on the distilling of it. The "terrifying" figures concerning home distilling in the 1920's which authors love to refer to were never accompanied by an extensive social analysis of the situation in those years.

The dynamic of the expenditure of products on the production of home distilled liquor were not analyzed for the past three or four 5-year periods. This subject was discussed mainly in KROKODIL. But the production and sales of home-distilled liquor under the conditions of a planned economy are limited by a multitude of objective conditions which can always be subject to state, including legal control. An understanding of this was clearly reflected in the disputes of 1922 which we intend to discuss in the next issue of this magazine. Finally, the last (but first in importance) delusion has to do with purely economic factors. This is the postulate that it is advantageous for the state to trade in alcohol. When giving certain data concerning losses and individual figures, including the possibility of increasing the productivity of public labor by approximately 10 percent, we asked that these figures be remembered.

The time has come to return to them and to continue the discussion.

Today there is no point in trying to make precise calculations for the country as a whole: there is no organization that would engage in this and individual enthusiasts do not have reliable information. The figures used by numerous lecturers recently, as a rule, are extremely subjective.

Such calculations were made in the past.

In 1911 1.26 billion rubles' worth of hard liquor, wine and beer were sold in Russia. Losses resulting from losses of working time, reduced ability to work, damage to property, fires and hooliganism were estimated at more than 3 billion rubles (A. Subbotin, 1927).

A similar calculation was made in the USSR at the end of the 1920's. The net income from alcoholic beverages in 1927-1928 amounted to 728 million rubles and losses in the national economy--1.27 billion rubles (E. Deychman, 1929).

Czechoslovakian sociologists have analyzed the situation over 40 years (1936-1975). During this time the consumption of alcohol there increased almost fourfold. Now the state earns 9 billion krone from the sale of alcohol and loses 19 billion (POLITIKA, No 22, 1979).

Soviet Georgia is one of the best republics in the country with respect to drunkenness. It has age-old traditions of "moderate" consumption of grape wines and cognac. But the commission for fighting against alcohol abuse under the Central Committee of the Communist Party of Georgia conducted an analysis and established that the documented economic losses from alcohol abuse amounted to to 205 million rubles and income from trade in alcohol during this same time segment amounted to 148 million rubles (the work of sociologists of Tbilisi University, 1977).

Finally, the same conclusions were reached by the World Health Organization on the basis of an analysis of an immense amount of international information. In one of the latest reports its experts write heatedly that the financial advantages of any measures for reducing the consumption of alcohol "are difficult to demonstrate in countries which obtain a considerable amount of income from the sale and exporting of alcoholic beverages and in which the

corresponding economic damage from problems related to the consumption of alcohol are either not sufficiently documented or are generally not recognized because of a lack of proof of the fact that the losses both in income and in labor force exceed the advantages from the trade taxes and the production of alcoholic beverages."⁹

Naturally, various methods of calculating do not always produce exactly the same results. But in general the figures are clear. We shall take the extreme viewpoints: both of those who truly believe in the high income from trade in alcohol and those who assert that the losses amount to 5 rubles per 1 ruble of income (incidentally, these are the results of calculations too!). There remain repeated expert evaluations on the regional, national and international levels which firmly accept the coefficient of losses from alcohol for the society in the range of 1.5-3.0. This means that for every ruble of income from trade in alcohol there are from 1 ruble 50 kopecks to 3 rubles in losses in various spheres of the national economy. The more extensively we trade the more we lose. In addition one must clearly see the incommensurability of the very concepts of income and losses in this concrete case. "Income" is always only cash circulation, the movement of money. Losses are real--of human life, technical equipment, crops and so forth.

This understanding is finding more and more support among the community. Thus on 20 October 1980 PRAVDA wrote: "The USSR Gosplan and the union Ministry of Finance should work more persistently to improve the budget and find more reliable items of income that are acceptable from all standpoints." On 16 February 1983 PRAVDA returned to this issue and cited a letter from one of its readers: "Is it really impossible to gain control over the consumption of alcohol? Let the budget be deprived of the part of its income that comes from the sale of alcohol, it is possible to replace it with something else. This does not have to happen all at once, but gradually." On 27 January 1985 PRAVDA repeated this question: "What is the situation with commodity turnover? After all alcohol is a marketable commodity and it must be replaced with something.... It is not a simple task. But there is no other way. A halfway position cannot even slow up the process of the increasing use of alcohol: it only masks it."

The voice of the community was precisely reflected in the decree of the CPSU Central Committee, "On Measures for Overcoming Drunkenness and Alcoholism." It was recognized as necessary to envision in the plans for economic and social development of the USSR an annual reduction of the volumes of production of hard liquor and alcoholic items.

This decision is being actively supported, we are convinced, by millions of Soviet people. All the other measures to fight against drunkenness should rest on the foundation of a gradual reduction of the consumption of alcoholic beverages. But to achieve a reduction of consumption with an increase in production is pure utopia.

Let Us Discuss Constructive Suggestions

First of all, we cannot but discuss the work that is already being done. Various kinds of efforts are being made by party committees, commissions of

local soviets of people's deputies and commissions of enterprises. The nationwide movement for strengthening discipline which was initiated after the November (1982) Plenum of the CPSU Central Committee gave a powerful new impetus to the struggle against all kinds of violations of order, including those caused by drunkenness. The work of internal affairs and public control agencies became more active and they began to use legal sanctions more extensively against violators of discipline in all spheres of public life. Finally, a network of drug abuse institutions was created which covers the entire country. One cannot fail to see the positive results of this activity.

But still the problem of fighting against drunkenness and alcoholism remains. This is true primarily because the efforts of organizations participating in this work are isolated, the interests do not always coincide, and many of them have a halfway social position: on the one hand it is undoubtedly necessary to fight against drunkenness and eradicate it, and on the other if we "eradicate" it we will disturb the balance of the budget and this, in turn, threatens to bring the most serious social consequences. This is precisely the halfway position that was censured in the decree of the CPSU Central Committee, "On Measures for Overcoming Drunkenness and Alcoholism." The party Central Committee demanded from all party, soviet and trade union agencies that they step up the fight against alcohol.

Today we are at the very beginning of this extremely difficult fight. There is no small number of phenomena that still have to be studied, analyzed and interpreted. Let us express a couple of considerations regarding this.

A familiarity with the general social and specific factors that make it possible for drunkenness to put down such deep roots in all countries of the world leads us to an understanding of the circumstance that in our country a complete victory over this evil can be won only on the path of a general lengthy process which is called comprehensive improvement of developed socialism. This is the broad prospect of social development which is embodied at the level of setting of nationwide goals and it requires support with resources.

This was said for an understanding of the overall process. Now about the actual measures, both long-term and immediate. Our readers write about these to the editorial staff when answering the special question on the EKO questionnaire, and specialists have told us about them in oral conversations.

The development of a long-term comprehensive program. This idea was clearly embodied in the April decree of the CPSU Central Committee in which the USSR State Committee for Science and Technology, Academy of Sciences and other leading scientific departments were instructed to develop a statewide comprehensive program for prevention and overcoming of drunkenness and alcoholism. Such a program will require a systematic approach, the construction of a multilevel tree of goals and resources, the enlistment of a broad range of specialists, and so forth.

One must say that this idea did not originate today. It has been discussed among specialists for a long time. A typical position is the one held regarding this issue by the elder statesman of Soviet economists, Andreyev.

J. G. Strumilin. In the collection entitled "The Reform Raises Problems" (Moscow, "Ekonomika", 1968) he wrote: "From the standpoint of sober cost accounting the expansion of trade in hard liquor which we are practicing will only multiply the loss it causes to the entire national economy.... And therefore it would be more advantageous to reduce the trade in liquor right down to zero than it would be to expand it without measure." After this article in a letter to the sociologist I. A. Krasnonosov he continued: "Alcoholism is threatening to become (if it has not already become) the greatest disaster of our people. In order to eliminate it it will be necessary first of all to halt the trade in liquor for 5-10 years and using well-thought-out economic sanctions and other measures to wage a merciless battle against home distilling. All this will require immediate development of the same kind of long-range statewide plan which everybody understands for sobering up the country as the Lenin GOELRO plan was." It was precisely this --comprehensive--nature of the measures that was approved at the meeting of the Politburo of the CPSU Central Committee in April of this year and that should be carried out by all involved departments.

The development of the Unified Antialcohol Law of the USSR and the Union Republics. Without this it will be difficult to provide for a unified legal approach to the ever growing mass of problems that are arising in this area.

In planning--the changeover from increasing the output and sales of strong alcoholic beverages and low-grade fortified wines¹⁰ to their gradual reduction with the corresponding replacement of this item in the budget income. In the decree of the CPSU Central Committee, "On Measures for Overcoming Drunkenness and Alcoholism" this most important requirement is embodied firmly and unequivocally: "...to envision beginning in 1986 an annual reduction of the volumes of production of liquor and alcohol items, and by 1988 to completely halt the output of fruit and berry wine." This is a difficult decision, but there are no alternatives to it. If the sales are reduced by 4-5 percent per year the budget losses will be less than 1.5 percent of the retail commodity turnover of foodstuffs or nonfood commodities (their sales volume will be almost the same). The reimbursement for these losses through improving the structure and quality of retail commodity turnover and consumer services to the population is not an easy matter, but it is quite possible. Naturally, this process should not affect the prices of food products that are in daily demand.

Many readers suggest another path: taking out a state "antialcohol" loan. They write that this measure should be approved by the majority of the country's population. In order to understand the scope of the operation that is proposed let us clarify that the annual sum we seek in the income part of the budget (1.5 percent of the retail commodity turnover) is approximately equal to the annual incomes from the loans during the postwar period of 1946-1958. During these years they took out loans in an amount of 260 billion rubles on the monetary scale for 1961 (BSE, 3rd ed., Moscow, 1972, Vol. 7, p. 293). No loan could cover a larger reduction of the sale of alcoholic beverages than 4-5 percent per year, not to mention completely prohibiting them. Let us add that the path proposed by the readers involves a revision of certain existing procedures of monetary circulation: planning cash flow, emission operations, functions of the Gosbank Reserve Fund, and so forth.

It seems to us that a more realistic path would be to expand retail commodity turnover and improve its structure. Our trade is reluctant and unskilled.

A favorable process of gradually releasing the budget from its dependency on alcohol which is to begin in 1986, it seems to us, should be placed under the vigilant control of the public and control agencies. The temptation is too great for certain financial and planning activists to slow up this process and put the brakes on it, blaming temporary difficulties and following the beaten path. The question of the lower limit of the production and sales of alcohol should be the subjects of special research and decisions, for which there is enough time left even if we begin with an immediate reduction of production by 5 percent per year.

The creation of a unified organizational and scientific research antialcohol center which takes advantage of international experience (the Hungarian Committee for Fighting Against Alcoholism, the Central Committee for Fighting Against Alcoholism in Czechoslovakia, the Permanent Commission for Fighting Against Alcoholism in Poland, the National Institute for Fighting Against Alcoholic Abuse in the United States, the High Committee on Alcoholism in France, the Federal Commission on Alcoholism in Switzerland, and so forth).

The creation of an all-union voluntary society for fighting for sobriety. This dream of many years of all proponents of a sober way of life has now been embodied in a decree of the CPSU Central Committee. It is appropriate to emphasize that this will be the only organization for which the fight against drunkenness will be the main goal and not a secondary one. For the time being for the Ministry of Public Health, the Ministry of Internal Affairs, the court and the procurator's office and the local soviets this is one of many concerns. For the society it will be the main and only concern, and this will help to rally the forces of enthusiasts, to collect information and engage in propaganda, to prepare recommendations for directive agencies, to help drug abuse services and so forth. The separate sobriety clubs will join together into a unified all-union voluntary organization. There is experience in the operation of such a society in the People's Republic of Bulgaria. It is very instructive and effective experience. Exporting millions of decaliters of grape wine and cognac, Bulgaria itself knows how crucial are the alcohol problems that are typical of the countries that surround it.

The present movement of proponents of sobriety continues progressive traditions of the past and corresponds completely to the ideals of a socialist way of life. So far it has been organized in any way or been given legal form. Numerous clubs, groups and circles for sobriety are not linked or joined together by anything. Their methodological, organizational and legal unification will be extremely useful and will provide a broad outlet for the natural need for the proponents of a sober way of life to help state agencies in their fight against drunkenness and alcoholism.

The departments involved in the manufacture and sales of alcoholic items have at their disposal a powerful apparatus of artistic advertising which gives an extremely attractive image both to the alcoholic products themselves and to the ritual for their consumption. It would be fair if the opponents of the

consumption of alcohol would be able to respond by propagandizing their own ideals--a healthy, sober way of life.

The social measures and proposals discussed up to this point were gathered by us and were brought up by the readers long before the latest government decrees on the fight against drunkenness. This is even more gratifying since almost all of them have been clearly reflected in these important party documents. One cannot but see here the profound attention that is paid to the concerns, advice and wishes of the broad segments of the population--the gratifying process which we see not only in the fight against alcoholism but also in many other sphere of life.

Certain of the measures mentioned above are intended for a long-range effect. The more mobile operational measures (but not one-time measures, and they are also oriented toward permanent application) should, apparently, be concentrated around an entire system of related tasks. We are trying to name them without substantiating or interpreting them, for this is a job which is within the power only of a large group of specialists.

Limiting the availability of alcohol. This task is already being carried out by optimization of the trade network, the price policy for alcohol, and the observance of measures for halting the manufacture of home-distilled liquor. Its implementation will rely on a planned reduction of the production and sales of alcoholic beverages. A special place in this program should be occupied by experiments with local limitations: a "dry law" for a particular territory, a particular time of year and so forth. Control over the application of industrial alcohol and compounds that contain alcohol must be sharply improved.

A reduction of the demand by diverting and replacing drinking with other forms of leisure. This will require a revision of the policy of spectator organizations, an updating of the methods for work at the place of residence, and the linking of a number of measures to the schedules for the payment of wages and bonuses. It will be necessary, in particular, to know all of the real interests of the adult males of various ages, their nature and education, and then to search for possibilities of satisfying these interests and developing them and bringing them closer to what is desired. Extremely promising is the development of a nationwide sports and health program which is directed toward developing new interests and needs, new diversions and forms of communication and spending leisure time. The development of a system of private farmstead plots and gardening societies requires successful and well-thought-out forms.

Prevention of alcoholism in adolescents and women.¹¹ This is the most painful and the most immediate of problems. In order to resolve it it is necessary to mercilessly break down the indifference of individual Komsomol agencies and subdivisions of the Ministry of Education in order to rely on their all-encompassing network, to radically step up pedagogical general training of parents, to make the antialcohol education in the place of residence a general and irreversible process, to expand the network of children's clubs and summer labor camps, to make sports in the place of residence competitive and publicized, to give greater rights and opportunities to housing

administrations, to revise certain norms of architectural arrangement, and so forth.

The formation of public opinion. The large amount of work which was started in this area after the publication of the last documents concerning the war against drunkenness should be continued, but not haphazardly but on a systematic basis. An immense role can be played by television, which is still addressing the subject unconfidently and unsystematically.

Increased demands on labor collectives. There is no single formula which would make it possible to change the situation immediately. Another thing is important: there are examples of high demandingness which sharply improve the situation in the shops and services of the enterprises. As a rule this takes place in places where the top managers of production take a firm position, they themselves have the moral right to demand sobriety from their subordinates and they receive all-around support from party committees and other public organizations. The experience of the best labor collectives in this sphere should be seriously studied and generalized. The CPSU Central Committee emphasized that it is the duty of each communist and each manager to provide a good example of an active fight against drunkenness.

The strengthening of the drug abuse and therapeutic labor network. The activity of this network, which plays a major, decisive role in the fight against alcoholism as a disease, should be analyzed from the standpoint of the goals that have been set and the possibilities of achieving them. The institute of legal psychiatry imeni V. P. Serbskiy could calculate on the basis of mathematical models not only the variants of the development of the country's psychiatric service for the future (which it did on order from the USSR Ministry of Public Health), but also the entire system of drug abuse institutions and therapeutic labor points in keeping with the predicted dynamics of the contingent of people who are ill and in need of rehabilitation. It would be useful to discuss the variants, which have varying effectiveness and require various resources, and not casually, but with the participation of the broad medical community. Much has already been envisioned in this area in the April decree of the USSR Council of Ministers: the construction of therapeutic labor dispensaries with their own production base, the organization of cost accounting drug abuse offices, the expansion of anonymous forms of assistance to alcoholics and so forth. But let us repeat: it is necessary to analyze this entire program in order to obtain a clear answer to the question of the degree to which it will provide for the achievement of the social goal: to reach the entire contingent of alcoholics.

Refinement of the legal sanctions. In addition to the system of fines introduced on 1 June 1985 it would be useful to analyze the statistics of repeated violations involving alcohol in order to reveal the weak points of the existing norms of responsibility for actions that are committed in an intoxicated condition. It would be useful to augment the many years of polemics among legal experts concerning the degree of liability of intoxicated criminals with a discussion of the completeness and the systematic nature of legal norms defending the society from drunks and tolerance of drunks. In particular, attention should be given to the proposal of certain legal experts to introduce into the criminal code an addition which places on each citizen

the legal responsibility not to reach such a state of drunkenness that the legislator recognizes as known to be socially dangerous.¹²

The preparation and convening of the all-union scientific and practical conference for discussing the problem, and not a departmental one, but one under the control of the USSR Academy of Sciences. This suggestion is based on an individual remark published in the current issue.

The list that has been given is only a summary of the areas around which it is possible to group concrete measures and procedures that are directly linked to one another in a unified and noncontradictory system as is required by the decree of the CPSU Central Committee on measures for overcoming drunkenness. Some of the possible measures require preliminary investigations while others can be carried out immediately and still others--as a regional experiment, and so forth.

Without waiting for the results of scientific research, on the basis of experience that has already been accumulated it would be good to develop methodological programs for production collectives, kolkhozes and institutions for the utilization of all forms that have been justified for fighting against daily heavy drinking and alcoholism. These programs should describe in detail and recommend procedures for public control: the creation of working commissions and posts, the work of comrade's courts, work with the families of drinkers, the behavior of managers in various situations, publicity regarding the sober way of life, forms of communication with drug abuse services and the police, principles of prevention, the attitude toward the patients who have returned from treatment, and so forth. Such typical programs would facilitate a great deal the practical fight against drunkenness in the collectives and would help to avoid both inaction and overreaction.

In April of this year the USSR Council of Ministers decreed that the policy for the sale of alcoholic beverages, except for issues regulated by decisions of the USSR government, is determined taking into account the local conditions of the republic, kray and oblast agencies of authority. In conjunction with the instructions of the Ministry of the Food Industry to expand the output of liquor items in small packaging, this provision leaves the possibility of local actions that are dictated by immediate interests and which contradict the spirit of the decree of the CPSU Central Committee, "On Measures for Overcoming Drunkenness and Alcoholism." Therefore we suggest restoring to legal force the decision of the RSFSR Sovnarkom of 29 January 1929,¹³ which permitted the local soviets, on petitions from general and delegate meetings of workers, to close any points for the sale of liquor and liquor items (to prohibit the sale of these drinks in them). This decision of the Sovnarkom guaranteed immediate closing of the trade point on the demand of the community, regardless of the results of the subsequent complaints of this decision to the higher agencies.

We clearly understand that not everything in the proposed program has been thoroughly worked out and legally substantiated. We had a more modest task: to give the readers material for thought and to help them to become involved in the search for concrete measures and procedures, which was clearly discussed in the April decree of the CPSU Central Committee: all agencies,

from the central committees of the communist parties of the union republics, ministries and departments to the party, trade union and Komsomol organizations and economic managers are to develop and carry out a complex of all-encompassing substantiated organizational, administrative and educational measures that are directed toward decisively strengthening the antialcohol struggle and increasing its effectiveness. DEVELOP AND CARRY OUT.... This means that in the future lies difficult and multifaceted activity for sociologists, legal experts, administrators, drug abuse experts and educators. There is a multitude of possible forms of this work and a host of involved agencies. Strong educational measures can be discovered and carried out in any collective. But the economic and social foundations of the fight against alcohol inevitably lead us to the depths, to the three whales, which in the fairy tale hold up terra alcoholica. These three whales are the Gosplan, the Ministry of Finance and the Ministry of Trade. If they do not exhibit high activity, resourcefulness and enterprisingness, all the other efforts can be reduced to a fuss related to secondary causes of drunkenness and it will be difficult to carry out the decree of the CPSU Central Committee. Discipline and order in the sphere of labor activity are necessary prerequisites and preliminary conditions for any kind of coordinated work. "General approval," said Comrade M. S. Gorbachev at the All-Union Scientific and Practical Conference in December 1984, "has been given to the struggle developed by the party for the establishment everywhere of order, organization and discipline, and the increased responsibility of personnel at all levels of management."¹⁴ Without strict order and without discipline it is impossible to achieve success either in economics or in politics. And drunkenness actually amounts to weights on our legs which make it difficult for us to move forward. It is multifaceted and merciless both toward business and toward man. This means that it is necessary to fight against it mercilessly.

One thing must be kept firmly in mind here. The most profound and decisive decrees can operate at full force only when they rely on the community. It is possible to wipe out drunkenness only if the whole world participates. And here the main character is public opinion.

For many years it did not proclaim itself at the top of its voice. But today we all feel that public opinion is straightening its shoulders. We still are not completely aware of what mighty muscles it has. But it has them. And this inspires hope.

FOOTNOTES

1. SELSKAYA ZHIZN, 18 January 1984.
2. "Violations Related to the Consumption of Alcohol" (in Russian), Geneva, WHO, 1978, p 6.
3. The question of "safe" doses of alcohol is not the same thing and should be considered separately. From the standpoint of physicians there are no "safe" doses at all. But doses that, as a rule, do not cause asocial behavior have still been established. They should not exceed 70 grams of absolute alcohol at one sitting ("Violations Related to the Consumption of Alcohol," p 30). The latest research has reduced this to 40 grams.

4. "The USSR National Economy in 1980," Moscow, "Finansy i statistika", 1981, p 402.
5. "The USSR National Economy in 1960," Moscow, "Statistika", 1961, p 726.
6. "Violations Related to the Consumption of Alcohol," p 69.
7. The writers Zoriy Baloyan and Petr Dudochkin are devoting a great deal of effort to publicizing the good traditions of the Russian people. And the fight against pseudotraditions.
8. SOVETSKAYA ROSSIYA, 13 March 1984. Note that there are methods for calculation which give more alarming figures. But the ones given below are sufficient to understand the situation.
9. "Violations Related to the Consumption of Alcohol" (in Russian), Geneva, WHO, 1982, p 65.
10. The low-grade wine now being produced, in the opinion of many medical experts, should be prohibited. It has been noted in the press that it frequently does not meet the existing (extremely undemanding!) GOST's. Control inspections of its quality have repeatedly ended in the demand to pour this poison into the sewer. The partial prohibitions of its production have not yet been brought to a conclusion.
11. This problem has been written about repeatedly and with great alarm lately in the central newspapers, especially SOVETSKAYA ROSSIYA and IZVESTIYA. Percentages were given for schoolchildren in the 6th-10th grades who come in contact with alcohol who were investigated by sociologists, and the opening of adolescent drug abuse offices and female drunk tanks in a number of cities was announced.
12. Beysenov, B. S. "Alkogolizm: Ugolovno-pravovyye i kriminologicheskiye problemy" [Alcoholism: Criminal-Legal and Criminological Problems], Moscow, "Yuridicheskaya literatura", 1981, p 126.
13. Published in IZVESTIYA VTSIK, No 46 of 24 February 1929.
14. PRAVDA, 11 December 1984.

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EDITORS RESPOND TO ALCOHOLISM ARTICLES

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 p 128

[Editorial response: "We consider it necessary to convene an all-union conference for developing strictly scientific approaches to the implementation of the decree of the CPSU Central Committee, 'Measures for Overcoming Drunkenness and Alcoholism'"]

[Text] Having studied, at the request of the readers, certain questions of the economic and other kinds of harm caused to our society by daily drinking and the disease of alcoholism and having understood the great complexity of this phenomenon and its comprehensive interdisciplinary nature, the EKO editorial staff suggests discussing this problem at a scientific conference of the highest level.

The medical-biological aspect of the problem is widely known. The negative influence of drunkenness on the economy is profound and ramified in nature, and it requires an equally ramified set of neutralizing measures. The influence of alcohol in the social and criminal-legal areas is also great and diverse. Thus one gets a picture of such complicated socioeconomic, medical-biological, legal, pedagogical and organizational aspects of the total problem that one cannot count on working it out even through the efforts of several departments by themselves. This is precisely why scientific-practical conferences conducted at one time by the USSR Ministry of Public Health, the USSR Ministry of Internal Affairs and other departments were specific in nature and their recommendations did not rely on a broad, systemic approach.

Only the USSR Academy of Sciences has the scientific potential and breadth of approach necessary for this.

Because of all that has been said the editorial staff asks the Presidium of the USSR Academy of Sciences and the Presidium of the USSR Academy of Medical Sciences to consider the question of convening in 1986 an all-union scientific

conference of a broad profile for developing strictly scientific approaches to implementing the decree of the CPSU Central Committee, "On Measures for Overcoming Drunkenness and Alcoholism."

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CITIES REPORT INFORMATION ON ALCOHOL STRUGGLE

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 129-135

[Reports from cities: "Experience Worthy of Study"]

[Text] Cheboksary. At the electrical equipment plant first of all they have decided to take full advantage of the rights that are granted by the Law on Labor Collectives. Taking into account the unfavorable situation with drinking which has arisen at the plant, the disciplinary commission has begun to meet DAILY, enlisting the broad public in its work. And its daily meetings are headed by the plant director, G. V. Britvin. Is this a burden? Perhaps. But still the most important goal is being reached: the inevitability of the examination of each case of drinking while on duty and coming to the shop intoxicated. The attitude toward this problem on the part of the chiefs of the shops and services has gradually changed: they do not protect the violators, they do not indulge them and every last one of them has to come before his comrades. A situation of intolerance toward violators has gradually taken form in the plant. And the disciplinary commission no longer has to meet every day.

The secretary of the plant party committee, V. M. Kramarenko, discusses the results of the sharply increased demandingness: "The complex of all the measures of public influence and the stricter demands from the leaders at meetings of the party committee and the trade union committee have led to a situation where in 1984 the number of absences and tardiness for work and the number of people arrested because of being drunk was almost cut in half. In the best repair and machine shop the number of cases of drunkenness has been reduced to one-third. The conclusion: even in shops where there is known to be an unfavorable male contingent it is possible to achieve goods results if one takes up the fight against drunkenness in earnest and wages and not as a one-time campaign, but every day."

Berdsk. At the radio plant the council for prevention meets once a week. It includes a drug abuse physician, representatives of the party committee, the Komsomol committee and the trade union committee, the personnel division and the plant in-house newspaper. All the violators of the past week come before them--and the council deals with each one personally, deciding what kind of help he needs or what kind of punishment he deserves. And it really is help

and not punishment that is the work of the leadership of the shops, which is carried out in keeping with the qualified recommendations of the council for prevention.

The plant has a tough contingent of workers, many of them are sent here by the police for labor placement, and a number of them have been released from prison. Therefore the council for prevention maintains constant contact with the city division of the Ministry of Internal Affairs and has developed its own devices for prevention. It is important that all of this is done as part of a system, as a part of a "comprehensive plan of measures for fighting against drunkenness and idleness during 1982-1985." And it is also important that the initiator and the spirit of the majority of the enterprises is the drug abuse physician A. F. Davydov. And although there are no "victorious" figures, it is quite clear that without the work that has been done the situation at the plant would be much worse. Toward the end of the existing "comprehensive plan" a new one will be developed which sets higher goals.

Voroshilovgrad. Here the oblast drug abuse dispensary has concentrated its attention mainly on adolescents, warning them that in the future they may visit the physicians as alcoholics. In the primary schools and vocational and technical schools there are regular meetings and lectures to which educators, psychiatrists, legal experts and workers of internal affairs agencies are invited. There is constant work with parents. The materials of antialcohol propaganda are included in the system for increasing the qualifications of teachers and in the work of the houses of sanitary education. In order to discover the 15-17-year-old schoolchildren and students in PTU's who are drawn to alcohol, an adolescent drug abuse center has been opened up, and it is not based on the drug abuse dispensary but it is in one of the hospitals of the city in a region where there are many schools, teknikums and PTU's. Once or twice a year the students of the vocational and technical school conduct preventive inspections in the adolescent treatment center with the participation of masters of production training. The medical education consultation council at the drug abuse center is linked to all the inspection teams and commissions for affairs of minors, it conducts work in the families, it sends members of the council to the dormitories, and it explains which social-domestic or therapeutic help should be offered to various adolescents. For intelligent organization of their leisure they have created a youth club called Rodnik with an interesting program of work.

The activity of the Voroshilovgrad physicians is finding support from the community and has a real influence on preventing adolescent drunkenness.

Divnagorsk. There is such a form of expression of public opinion as rural and urban assemblies of citizens. In Divnagorsk these assemblies gathered for the first time regarding accelerating the construction of the Krasnoyarskaya Hydroelectric Power Station, the largest on the planet. And in 1981 the third urban assembly of citizens of Divnagorsk, which took place right on the bank at the bend of the Yenisey River, discussed how to fight drunkenness more successfully: this small city annually loses up to 2 million rubles just from absences caused by drunkenness.

The decisions that were adopted were simple and understood by everyone: not to sell alcohol on Mondays (this is to fight against the hangovers that always come after Sunday), not to issue six call passes if the visit to the doctor involves the consumption of alcohol, to deprive drunkards of material goods in keeping with the rights given to the labor collectives by law, and to provide for publicizing all violations that are caused by drunkenness. All this is carried out in a system.

The amount of illness decreased even after a month. There were fewer drunks in the drunk tank and crime decreased. The indicators of the sale of alcoholic beverages also decreased.

During the past 3 years the Divnagorsk system of measures has been expanded and enriched. The population now knows more about drug abuse. A map of apartments where there is a great deal of drunkenness has been drawn up and these are being cleared out on a planned basis. This has led to a marked reduction of the number of absences at enterprises of the city on the days after the days off.

Convinced of the usefulness of measures included in the unified system, the kray agencies of authority have given their agreement to expand the experiment. The drug abuse program created by the Krasnoyarsk workers is being introduced in a large region--Kharkasiya. A group of physicians consulted about its introduction in Abakan, Chernogorsk, Sayanogorsk and the village of Shira. The experiment was conducted under the supervision of the problem commission entitled "Interdepartmental Aspects of Drug Abuse" of the USSR Ministry of Public Health. The measures conducted in Kharkasiya were regulated by a special decision of the board of the kray public health division and the commission of the kray ispolkom for fighting against drunkenness and alcoholism. In 1985 it is intended to extend these methods to Achinsk, Kansk, and then--throughout the entire territory of the kray.

Tomsk. There is a city service for free time in operation here. The staff for efficient organization of the free time of the citizens is headed by the deputy chairman of the Gorispolkom. The staff's task is to provide leadership and coordination of the activity of all (we emphasize--all!) institutions which are involved in one way or another in the organization of leisure. Now staffs to organize days off exist in all the enterprises, in all the institutions, everywhere. The staffs of the organization are included on councils of the microrayons. The reins for controlling the affairs of the council of the microrayon are held in the hands of the director of the largest enterprise or institution whose workers live in the given microrayon.

There has been an appreciable reduction of the sale of alcoholic beverages in the city and the number of legal violations is no longer increasing.

Brezhnev. When the city was still called Naberezhnyye Chelny an important social experiment was conducted in it which should not be forgotten. For 7 years, from 1970 through 1977, the sale of wine and liquor in Naberezhnyye Chelny was decisively limited. "We have a 'dry law' as long as we are constructing the KamAZ"--this is what they said in the city. What took place for 7 years in Naberezhnyye Chelny can be regarded as a unique socioeconomic

experiment in terms of its scale, seriousness and consistency. And regardless of how ironic the skeptics may be about how easy it was to get around the established policy (does it take long to drive to Menzelinsk for liquor or across the Kama to Yelbuga?), the balance was objectively favorable. According to materials of the "first aid" service, with the "dry law" there were fewer injuries. According to the data of the city computer center there were fewer firings because of absences and other violations of discipline (1,029 before and 412 after the restrictions). The losses of man-days were more than cut in half. According to data of the city health commission diseases of the nervous system, heart, stomach, liver and kidneys seem to have been removed from the city.

But after 1 March 1977 when the first section of the KamAZ was put into operation, Naberezhnye Chelny was opened up for the sale of alcoholic beverages according to the general rules (limitations were sanctioned by local and central agencies as temporary). The entire city prepared for the day of the restoration of trade in alcohol, not without a certain amount of excitement. But it was in vain. No "explosions" and no "leaps" took place. The influence of the "dry law" was felt long after it was abolished. Later it was replaced by other measures developed by the city agencies. They are in effect even today: the system of commissions, the unified city plan, the annual "rallies of alkies" when all of the drunks gather together in one hall (they go there, naturally, not out of their own will, but are sent by the brigades and the shops). The entire program is presented to them: the story of a former alcoholic, speeches by the head of the kindergarten, the drug abuse physician, the procurator, special films, and so forth. The entire city knows about this "rally" and each time there are fewer and fewer participants in these unpleasant meetings. And in the work dormitories the "dry laws" have not been abolished even today, and people make sure that it is observed.

But without idealizing this experience and without exaggerating its significance, one should recall that it is worthy of study as one of the forms of fighting against drunkenness in the system of measures, as a positive example of the effect of the restrictive policy.

Moscow. Drug Abuse Hospital No 17. The MosavtoZIL allotted a section from the former dormitories for it, took on the responsibility for technical service, and appointed workers to organize the labor of the patients. And this concern has been justified and is paying for itself.

Each day 450 people come here--some at 7 in the morning, others at 2 in the afternoon and still others at 11 in the evening. Eighty-five percent of the patients are going to a shift at the plant. An average of 98 percent of them fulfill their norms. Only labor restores man's sense of worth which was lost at the counters of liquor stores. The payment for their labor is in keeping with the general norms and rates. What is left after subtracting 40 percent of the earnings (this goes for maintaining the hospital in addition to the funds allotted by MosavtoZIL) is entrusted to the families of the patients or is put aside until the end of the course of treatment.

Nobody is refused admission to the hospital and the "personnel" are frequently selected literally right off the street. Institutes of the Academy of Medical

Sciences, the USSR and RSFSR Ministries of Public Health and Medical VUZes have established contacts with the hospital. Drug abuse specialists and automotive construction workers have developed a system of labor rehabilitation for alc 'olics which is being seriously studied.

Leningrad. At the city drug abuse dispensary, with the help of scientists from the Psychoneurologic Institute imeni V. M. Bekhterev, they have created psychotherapy groups where education therapy is augmented by daily attention to the personalities of the patients. Among those who have gone through the course 96 percent have not had anything to drink for more than a year. Those who have already been discharged go to "evening" groups for several years where they form a society of former alcoholics called "Optimists." The physicians are not making hasty conclusions but there is no doubt that an interesting model of psychotherapy for alcoholism has been developed and it can also be used in other therapeutic institutions.

Saratov. The autonomously financed therapeutic consultation polyclinic has opened up an autonomously financed drug abuse center for treating chronic alcoholism and daily drinking.

Taking into account the fact that the number of people wishing to be treated for alcoholism with the help of physicians is great, the city health department is preparing to open up another drug abuse office in the oblast center.

Arkhangelsk. A number of schools of Arkhangelsk are trying out as an experiment a system of school drug abuse education. They have gone from the simple to the complex. In the younger classes the children are shown examples which demonstrate the influence of alcohol in plants and animals. The older children gather information about the number of accidents caused by the abuse of alcohol and about the influence on the family budget of expenditures related to the purchase of alcohol. Detailed discussions are held with senior classmen by drug abuse physicians and psychologists.

The experiment has produced promising results. On its basis they have drawn up comprehensive recommendations, which the Ministry of Education...is in no hurry to introduce.

Riga. The first sobriety club, Amethyst, appeared here in 1977. Now there are more than a dozen of them in the republic. The charter of the club was approved by the Riga Gorispolkom. At the second all-union conference of psychiatrists and drug abuse experts the experience of Amethyst in antialcohol propaganda was approved and recommended for dissemination. Here too, in Latvia, the first republic rally of sobriety clubs was held in 1981.

The Latvian experience on the whole is worthy of thoughtful study.

Kiev. Here too the sobriety club is working actively under the same name of Amethyst (according to ancient beliefs the amethyst was a symbol of sobriety). The founder and leader of the Kiev Club, A. F. Mirolyubova, made its work widespread. The club provides consultation, helps to make arrangements for therapy, and after therapy--employment, it persuades and it publicizes the

sober way of life. Entire families come here, and friendly ties and the possibility of mutual support develop. Following the model and with the assistance of the Kiev members similar clubs have been created in Shaktersk and Odessa.

Komsomolsk-on-Amur. The "Comrade" sobriety club was created at the Plant imeni Yu. Gagarin. This club is called a sobriety society. And this is not only because it joins together people who do not drink who provide a personal example of how to conduct free time without drinking. They are active fighters against drunkenness and for high labor and social discipline at their own plant and in the rayon. Police officials are aware of the useful preventive work that is conducted by the club.

Novosibirsk. In the scientific center of the Siberian Division of the USSR Academy of Sciences the sobriety movement has developed under the slogan "each can enact his own dry law." In the science village there has been a marked reduction of trade in alcoholic beverages and the number of violations of labor discipline and legal violations have decreased.

They are searching for a comprehensive systematic approach to the problem with the participation of economists, sociologists and medical experts.

Nizhniy Tagil. The first sobriety group in a vocational and technical school in the country was created here. The first sober weddings were held in the city.

Sober student weddings have been organized in Yaroslavl, Kharkov, Tula, Gorkiy and Moscow.

As we can see, the sobriety movement is broadening in the country, it is seeking new forms of operation and it is becoming more active. The isolated efforts of enthusiasts will soon become united on a unified legal basis!

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DETERMINATION OF NUMBERS OF ALCOHOLICS EXPLAINED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 136

[Article: "How Many Drunks Are There in Your City?"]

[Text] It is most likely that you will not be able to answer the question raised in the headline. How does one count them?...

But specialists are convinced that it is possible to count them.

According to data of the WHO, every 16th man who abuses alcoholic beverages will become an alcoholic.

According to figures of Soviet researchers (D. A. Zaytsev, Ya. K. Azerbakh, 1973), out of every 36 chronic alcoholics there is one case of alcoholic psychosis each year.

Each case of alcoholic psychosis is clearly reflected in medical documentation. Practically every patient who has manifestations of alcoholic psychosis in the cities is hospitalized and accounted for.

This is approximately how the information circle is closed (we have simplified the picture somewhat). It is possible to calculate further. Not all medical experts recognize this method as irreproachable. But there simply is no other one that encompasses all the population points in the country. And this makes it possible to obtain noncontradictory quantitative evaluations.

In the USSR in the middle of the 1970's an important information system was created on the national level: the Scientific Statistical Center for Psychiatry under the Central Scientific Research Institute of Legal Psychiatry imeni Z. P. Serbskiy.

The data bank of the Scientific Statistical Center receives information from throughout the country and it is annually augmented with a mass that exceeds 2×10^8 bytes of information (M. I. Guberman, 1978). This enables it to predict for many years ahead the needs of the drug abuse services for resources, to analyze not only the contingent of psychiatric patients, but also the contingent of alcoholics who are augmenting them in various stages of

their diseases. To do this involved a breakdown for the various regions and cities, age groups and social groups, and so forth.

Thus the question raised in the headline can be quite confidently answered by the Scientific Statistical Center. It knows a good deal which you do not know about drunkenness in your city, oblast or republic.

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SHORTAGE OF GOOD MECHANICS NOTED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 137-140

[Article by F. S. Vesnin, chief of the technical division of the Kurgan Association of the Kurgan Dairy Industry Association: "Where Does One Find Intelligent Mechanics?"]

[Text] January 1961. A new chief came to the food industry administration of our Sovnarkhoz. He began by increasing the staff. The positions of engineer-economists appeared at all of the head enterprises at the expense of a reduction of the number of mechanics at the lower-level oil plants. That same year there was a conference of the economic aktiv. I could not restrain myself and crawled up to the podium.

"The new chief is acting incorrectly by leading the plant without mechanics. Any small plant, shop or impoverished blacksmith shop is maintained by them. They repair, regulate and adjust. If the mechanisms work this means that the production is working. There never has been and never will be planned supply of materials in our branch. A good mechanic will acquire everything, from pipette-burettes to power and welding transformers. He is always searching, going through fire, water and copper pipe if only production will not shut down. Production will gain nothing from the fact that Dunya the bookkeeper will be called Yevdokiya Abramovna the engineer-economist, but if the mechanic Dmitriy Mikhaylovich leaves we will lose a great deal. And you see--the good mechanics are leaving us!..."

"Do not pay any attention to him, Comrade Director: he is so undiplomatic. He says whatever he thinks. And this cannot be done. Your mechanics are not going anywhere. Everything is being done for their advantage. We are not reducing the number of mechanics but calling them senior handymen and they will receive not 69-78 rubles, but approximately 110-120 rubles, like the workers. Who will run away from good earnings? And one must understand the policy. No matter what happens we shall always be reproaching the economic services at the plants; we cannot do without this. Such is the requirement of the time, comrades! In 10 or 15 years life will show us who is right."

...Considerably more time than that has passed. The positions of mechanics have been introduced repeatedly at the plant and repeatedly they have been

eliminated in order to provide for a regular strengthening of some other services--bookkeeping, legal or simply bureaucratic. As a result of the squabbling and the natural aging we actually have lost mechanics. The legendary Ivan Mikhaylovich Burtsev, Dimitriy Mikhaylovich Varakosov, Klavdiy Kalistratovich Bubnov, Vladimir Konstantinovich Sidorov and many others have left us. Only two or three concerned mechanics are left out of the former 60.

But what about the economic services? It is 1980. There is a meeting of the balance commission of the association. The management of a large enterprise is being heard.

"We are listening, senior economist, tell us about your work."

"I have been the chief of the planning division for a long time."

"If I am not mistaken, you have been working for us for about 20 years?"

"Yes."

"As a veteran, it is time to grant you a government award. At your enterprise, what are the prospects, prognoses, unsolved problems, bottlenecks?"

"The director has reported everything...."

"We want to hear this from you from the standpoint of an economist. How is the assortment of products and why has the quality deteriorated?"

"The head engineer has said all there is to say."

"Do you really go to work and not talk with the workers and foremen?"

"There is nothing for me to do there. I understand nothing about equipment. My job involves papers and summaries."

"And in 20 years you have never once been in the shops?"

"I did not say...."

"But an economist should be interested in production! What are you interested in?"

"What do you mean what? I sit at the telephone. There are five plants, two divisions, a city dairy, the refrigeration facilities, the base, the garage, the shop, the compressor, the boiler.... Every day there is a lot of paper work and it is all urgent. It is necessary to gather summaries from the shop chiefs and process them. They call from the association demanding figures. We cannot handle the entire division. You work and work and work and they still scold you...."

"Calm down, please. You mean you do not have any time. And there is no time to fill out the board on which the indicators are posted. And frequently you do not give the director an economic analysis?"

"Our director knows everything better than we do."

Some things are being cleared up about economists: they have not changed very much from the account clerks of the 1950's. But what about mechanics? Previously the future mechanics were born right here in the plant village. It began as drawers, and then began to load the fireboxes of the boilers with spades, then they would take the hammer and file in hand, then the screwdriver and pliers, and only the most talented of them after 10-15 years grew up to be mechanics. The home-grown mechanics disappeared long ago and little can be gained from those with diplomas, and they are not kept at the plants.

Perhaps there are still enterprises where there are enough mechanics and they are kept on the job? It turns out that there are. Once I found one--the city purification installations. The staff included exactly 100 people, including eight mechanics with a secondary technical education.

"Why do you have so many mechanics? You do not have many mechanisms and they are all the simplest ones: pipes, mixers, reducers. It turns out that there is a mechanic for each pump."

"What do you mean, why? We have a continuous production cycle and operate 24 hours a day."

"And do they take them apart, put them back together and repair them 24 hours a day?"

"No, what do you mean! There is the shop chief and he has a staff of handymen on duty to do that. The mechanics have enough of their own work."

I went to the mechanics. Sitting at the table were two girls in white smocks.

"Hello, mechanics! Are there any fellows among you?"

"There are. They come on the night shift."

"What does your work amount to?"

"Each hour we take the handyman and go through the facilities and write down on a notebook the temperature of the bearings in the pumps. We come here and write everything in a journal and then we transmit this by telephone to the city: Pump No 5, temperature +25°C...."

"And in the city are your reports also received by specialists with diplomas?"

"What do you mean, this is responsible work."

"What instruments do you use?"

"Glass mercury thermometers with a precision class of one...."

"Perhaps it would be better to install temperature gauges in the facilities, that is, on the pumps, and here on the wall you can install a KSM-4 bridge with a precision class of 0.25 per 12 points of measurement. The recording on the chart would be continuous and there would also be 10,000 rubles in savings on wages?"

"But what would happen to the mechanics? You cannot do without us...."

"You could leave one here and send the rest of them to our plants. We also have purification installations with complete biological purification, but the plant equipment is much more complicated and interesting. Speaking of pumps alone we have several times more than you have. And we never have anybody to take care of them and it never entered our mind to record the temperature of the bearings every hour...."

"And what would we be doing at your enterprise?"

"You would be in charge of the mechanics service and actually of all production. You would teach the workers and make sure that they work. You would do the most complicated work yourselves. There would be calluses on your hands and concerns in your head--where to get something for production. You would know the name and patronymic of the managers in surrounding villages and distant cities. You would learn to eat and drink on the run, between jobs."

"You are behind the times, Uncle. Now even in the state vocational and technical school they teach the workers only to push buttons, and we come from the tekhnikum. Our smocks are white, our hands are clean, and we have instruments and notepads in our pockets. Install even a hundred bridges and still the management will not believe them, but we are going to take our measurements with the handymen!"

That is how it is. And the director of the oil plants ask tearfully: Tell us where to find one intelligent mechanic, even with a secondary technical education.

I am writing about the state of affairs at the lower-level oil plants, but in the country there are tens of thousands of small enterprises with up to 100 people: bakeries, mills, food combines, industrial combines and so forth which are filled with design workers, but they need intelligent mechanics.

And again one hears the response: we are reinforcing the energy, metrological and inspection services! And the number of office workers increases again. Probably again at the expense of the mechanics.... But let us think: where, finally, does one find intelligent mechanics?... Where?

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INDIVIDUAL NORMS AND RATES QUESTIONED

Novosibirsk EKONOMIKA I ORGANIZATSIIA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 140-144

[Article by A. V. Boyko, chief of the division for norm setting for labor and wages of the Kazakh SSR State Committee for Labor and Social Problems, candidate of economic sciences (Alma-Ata): "Are Individual Norms and Rates Necessary?"]

[Text] More and more frequently one can hear the question: is the output norm really necessary and who stands to gain from it? There is a quite realistic basis for this. Collective forms of organization and stimulation of labor motivate not only the managers and engineering and technical personnel, but also the workers themselves to look for more objective evaluations of the labor of the collective and each member in it. Workers are striving to coordinate wages more closely with the final results and not intermediate jobs.

On the other hand the requirements made by the party and by life to restructure the economic mechanism on a collectivist basis and the course toward intensification will be fulfilled only with efficient regulation of the labor of each and everyone together. And this, in turn, presupposes extensive utilization of progressive, economically and technically substantiated norms and normatives of labor expenditures.

But what path should be selected for improving norm setting for labor? How does one reach a point where the labor norm plays a mobilizing and distributional role?

Research shows that things are not bad at those enterprises of the republic which have departed from direct norm setting and use norms to calculate planned and normed assignments. And the situation is not as good in places where they use large numbers of operation-by-operation norms, which make it possible to reach a particular level of earnings both through direct writeups or including volumes of work "not taken into account by technology" as a result of artificial reduction of output norms. This is what has happened at enterprises of machine building, metal processing, wood processing and repair and construction work.

Many years of practice of the operation of associations in the republic--the Semipalatinsk Bolsheviks, the Ust-Kamenogorsk Titanium-Magnesium Combine, the Pavlodar Aluminum Plant, the Oktyubrentgen Machine-Building Plant and others--convince us that it is expedient to refrain from direct norm-setting for labor and to do it indirectly through planned assignments which are developed on the basis of progressive interbranch and branch norms for labor expenditures. Thus when changing over to the brigade form of labor organization, having replaced the piece-rate-plus-bonus system with the time-rate-plus-bonus system and having established normed assignments calculated on the basis of progressive time norms, the Bolshevik Sewing Association during the past five-year plan provided for increasing the proportion of technically substantiated norms from 61 to 88 percent, and the labor-intensiveness of the manufacture of items decreased because of this by 321,000 norm-hours. The difficulty of the existing time norms for sewing items increased by up to 14 percent as compared to the branch norm and labor productivity increased by 6.6 percent.

Normed assignments are being established for the brigades for each month. They take into account the planned volume of output for the given calendar period and the assignments for reducing labor-intensiveness. At the same time they determine organizational and technical measures to provide for the fulfillment of these assignments. Constantly maintaining norms at a progressive level makes it possible to award bonuses in amounts of up to 50 percent of the wage rate for reducing the labor-intensiveness of items calculated on the basis of branch normatives. Bonuses are awarded when the brigade fulfills the monthly normed assignment.

Such a system of wages has eliminated the need for piece-rate earnings, has released the time norm from the functions of the "regulator" of wages, has removed the issue of "advantageous" and "disadvantageous" jobs, has simplified accounting, and has increased the demands placed on the quality of the norms while the work for improving norm setting has become purposive and planned in nature. The norm actually has begun to stimulate a search for reserves for increasing labor productivity.

At the aforementioned enterprises the norms are revised annually according to the calendar plan which is developed taking into account measures for improving technical equipment, technology and the organization of production and labor. It gives a list of operations (kinds of jobs) for which the norms are to be revised and it indicates the amounts of their increase--they depend on the assignments for reducing labor-intensiveness and the time periods of the introduction of the norms. The workers are informed of the calendar plan and it is included in the collective agreement and the technical and industrial financial plan of the association. Systematic checking on the quality of the norms helps to keep them taut. This is done with the help of time and motion observations which make it possible to compare the planned and actual conditions for the performance of individual operations. The new system has made it possible annually to update about 80 percent of the existing norms while in the industry as a whole an average of no more than 6-8 percent are revised. Moreover, with this policy the norms for labor expenditures are increased with the development of production plans which take

into account assignments for increasing labor productivity and reducing the labor-intensiveness of items.

Improvement of norm setting at enterprises of the republic is done in a complex of measures for streamlining labor, introducing standard plans for the organization of work physicians, and improving their planning and supply of equipment. Already three-fourths of the workers are working at positions which are organized according to standard plans. This approach has made it possible for the sewing associations, for example, to gradually change over to work following the experience of the Volga Automotive Plant; it also contributes to the development of the practice of operating more than one machine tool.

The possibility of increasing the difficulty of the norms depends to a considerable degree on the engineer support for the work positions. Thus in the republic's Ministry of Light Industry the number of workers in the main occupations who are working in service zones that exceed the branch normatives increased during 1982-1983 to 77-80 percent, and the level of assimilation of these norms increased from 119.4 to 121.9 percent. For the various years of the five-year plan measures have been developed for changing workers over to larger service zones, and sections of highly productive labor are being created. All this has made it possible to increase the proportion of workers working according to technically substantiated norms to 83.9 percent, and by the end of the five-year plan this figure will reach 90 percent.

The experience of the Leninogorsk Polymetal Combine is instructive. On the basis of extensive dissemination of brigade and comprehensive organization of labor it has been applying consolidated norms of labor expenditure for many years for the extraction of ore and other mining work. The level of fulfillment of the norm sphere is identical to the level of fulfillment of the assignments for labor productivity and ranges from 102 to 107 percent. At the combine they have developed and are successfully using methods for determining the degree of consolidation of the norms for various organizational and technical conditions. Under these conditions of norm setting each case of so-called "deviation from the established technology" is documented and certified by the head engineer of the structural subdivision, which prevents unjustified overpayments.

Aggregate norms have recommended themselves well at coal enterprises as has the norm-plan at enriching and metallurgical enterprises where the norm of labor expenditures and, consequently, its payment are closely linked to the results of labor. The VAZ systems for comprehensive organization and stimulation of labor in which it is possible to combine the interests of the enterprise, the state and the workers has proved itself well at enterprises of various branches. Thus a good deal of positive experience has been accumulated. At the same time individual norms and ratings, in spite of all of their bad aspects, have become firmly ingrained in the practice of norm setting for labor. Today, when highly productive technical equipment is being used, collective forms of labor organization are being introduced and the technical activity of the masses is increasing, individual norms retard the growth of labor productivity. In our opinion, this outdated policy of norm-setting should be abolished everywhere under a centralized policy. This can

be done with the next adjustment of wages in the branches of the national economy. As an exception it would be expedient to retain direct norm setting of labor in machine tool, loading and unloading, transportation and several other kinds of work where the output norm directly reflects the final results of the labor. In the rest of the work progressive norms of labor expenditures should be calculated amounts for the substantiation of plans and assignments.

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FUTURE OF SMALL ELECTRIC STATIONS QUESTIONED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 144-147

[Article by K. F. Kostin, designer (Sverdlovsk): "Resurrecting Small GES's"]

[Text] During the postwar period there has been a kind of gigantomania in our country's hydraulic engineering: mainly the construction of large hydroelectric power stations. But, depending on local conditions and the volumes of consumption of electric energy, a harmonious combination of large, medium-sized, small and micro-GES's can be economically effective. The small GES's include those at which are installed hydrogenerators with capacities of from 200 to 5,000 kilowatts, very small--with capacities of from 20 to 200 kilowatts, and micro-GES's--from 1 to 20 kilowatts.

The question of resuming construction of small, very small and micro-GES's, in our opinion, seems unusual in our day because we have become accustomed to thinking on gigantic scales. A large role in publicizing the idea of a reasonable combination of large and small GES's could be played by economists and journalists, but, unfortunately, journalists light up when you say: "The first in the world," "the largest in the world," "the most powerful in the world." Yet in our country there are many consumers of a small quantity of electric energy--from 1 to 100 kilowatts. These are small villages, settlements, grazing camps, geological expeditions, border stations and so forth. Frequently they are also very removed from large electric power stations. If one were to sum up the expenditures on providing electric energy for the mass of these small consumers through the construction of electric power transmission lines or with diesel installations the figures would be immense.

In our country during the period of the Great Patriotic War and during the first postwar years, by decision of the government, hundreds of small GES's with capacities of from 200 to 5,000 kilowatts were constructed in short periods of time. In the USSR now, according to data of the Gidroproyekt Institute, only about 400 small GES's are in operation. About 3,000 GES's have been closed in the United States. The same tendency has been observed in other countries except for China, where about 90,000 of them are now in operation.

Is the elimination of small GES's economically justified? Of course not. In order to supply electric energy to consumers in areas that are difficult to reach it is necessary, in the first place, to construct high-voltage power transmission lines. This is expensive and, moreover, it leads to additional losses of electric energy (up to 10-15 percent). Diesel installations consume liquid fuel, and the expenditures on its transportation to the place of consumption are high. Suffice it to say that the production cost of one kilowatt/hour produced on diesel installations is up to 1 ruble while on small GES's it does not exceed 2 kopecks.

Was an economic calculation done when they decided to get rid of small GES's and replace them with high-voltage electric power transmission lines or diesel installations? I think not, but, perhaps, the economists did not have the right to a decisive vote....

Small GES's are now being resurrected throughout the world. In particular, in the United States a decision was made to return to the operation of 2,150 electric power stations that had previously been written off and to develop the construction of new ones. One can assume that in the next few years not only small, but very small and micro-GES's will be restored in our country.

Let us recall our domestic experience in creating them. As a rule they were constructed from local materials through our own forces. The equipment for hydroelectric power stations was created on the basis of the principle of expensive unification and series production. The GES planners and the plants supplying hydrogenerators and hydroturbines together created five series of unified generators with capacities from 200 to 5,000 kilowatts with rotation frequencies of from 100 to 428 rotations per minute. These machines were distinguished by the simplicity and reliability of the design and they required the application of a minimum assortment of materials and production fittings. All this made it possible to create standard GES's with a complete set of electric energy equipment. As a result they were quick to build, inexpensive, simple and reliable. Many small hydroelectric power stations have been operating reliably for 30-40 years now. In the modern stage it is necessary only to provide for complete automation of control in order to reduce the service personnel to a minimum.

At one time design enthusiasts and technologists of the Leningrad Elektrosila Plant set as their goal to construct an experimental floating micro-GES which would produce electric energy using the current of the water in rivers. The actual capacity which they intended to achieve was from 1 to 20 kilowatts, depending on the speed of the current and the depth of the river.

During planning the following tasks were set:

to make it possible to build a micro-GES at any enterprise or in shops where there is elementary machine tool and welding equipment or to organize their manufacture at large enterprises as consumer goods using production wastes;

to envision the transportation of the micro-GES to remote regions by various means, depending on the conditions--on water, by truck, tractor, helicopter or even with horses;

to include in the design such qualities that it would be possible for the service and repair to be done by personnel with elementary technical knowledge;

the cost of such an installation should be affordable even for a small organization.

The first experimental micro-GES consisted of a hydraulic propeller turbine of the flowing type which operates in the free flow of the water. The wheel of the turbine is placed with a welded element in a metal housing with a conical shape which forms the pumping tube (diffuser). The direct current generator is equipped with an automatic voltage regulator. The turbine and the generator were installed on floats. The anchor or two piles held the micro-GES. The connection between the turbine and the generator was made by a chain transmission. The first variant of the micro-GES was intended for being installed in a relatively deep river (no less than 1.5-2 meters) and in sections where the water speed was no less than 1 meter per second. The useful capacity of such an installation is 2-4 kilowatts, the cost--4,000-5,000 rubles, the weight in assembled form along with the floats--about 1.5 tons. With high water speeds the capacity increases as the third power of the speed.

In November 1940 the first experimental micro-GES was installed in the upper reaches of the Neva at a distance of 30 meters from the shore. At the beginning of 1941 another installation was manufactured which was intended for shallow but rapid rivers and foothill streams. It had a double turbine with a wheel diameter of 0.5 meters which operated on one generator. This floating micro-GES made it possible to obtain a double capacity with a small depth of the turbine. The rough cost estimate of this installation was about 2,000 rubles with series manufacture. They did not manage to test the installation because the war began.

If on this installation instead of an electric generator one were to place a centrifugal pump one would have a floating water pump which could pump water for irrigational fields. In Central Asia in the Caucasus there are many rivers and streams with a speed of more than 1 meter per second. Such a water pump with a diameter of the working wheel of 1 meter and the speed of the water of 1.5-2 meters per second could pump 45 cubic meters to a height of 10 meters in an hour, and during a day--more than 1,000 cubic meters. Having provided for irrigating one section, the floating water pump could be moved to the next section without any special effort.

It is necessary first of all to conduct a clear and intelligible economic calculation of the expediency of applying small, very small and micro-GES's or floating pump installations under modern conditions. After this is it is necessary to determine the leader who organizes the entire volume of work (with the participation of specialists in planning hydroturbines and the entire electrical part). It seems that these organizations should plan series of unified installations that encompass the entire range of capacities and frequency of rotations so that in production there would be a minimum of components and parts with a maximum quantity of them, that is, they should

create series standard installations. And then they should determine the plants or shops which could take on the responsibility for comprehensive delivery of the installations in order to avoid primitive manufacturing conditions and independent work. Series output should be preceded by the manufacturing, testing and development of each type of experimental installations.

The solution to the problem that has been raised will not only reduce the consumption of liquid fuels, but will also make it possible to make a weighty contribution to our energy engineering without large capital expenditures and mainly using local materials and labor resources.

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FOREIGN ECONOMIC TIES DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 149-170

[Article by Academician A. T. Bogomolov, director of the Institute of Economics of the World Socialist System of the USSR Academy of Sciences (Moscow): "Economic Ties Between East and West"]

[Text] At the economic conference of the high-level leadership of the CEMA countries in June 1984 a good deal of attention was devoted to the economic aspects of the interrelations of the countries of socialism with developed and developing countries. "The CEMA countries have always been consistent opponents of economic isolation," it says in the declaration adopted at the conference, "and have persistently come out in favor of and still are in favor of extensive, mutually advantageous cooperation with other states, normalization of international economic ties and the elimination of all kinds of barriers on the path to their development."¹

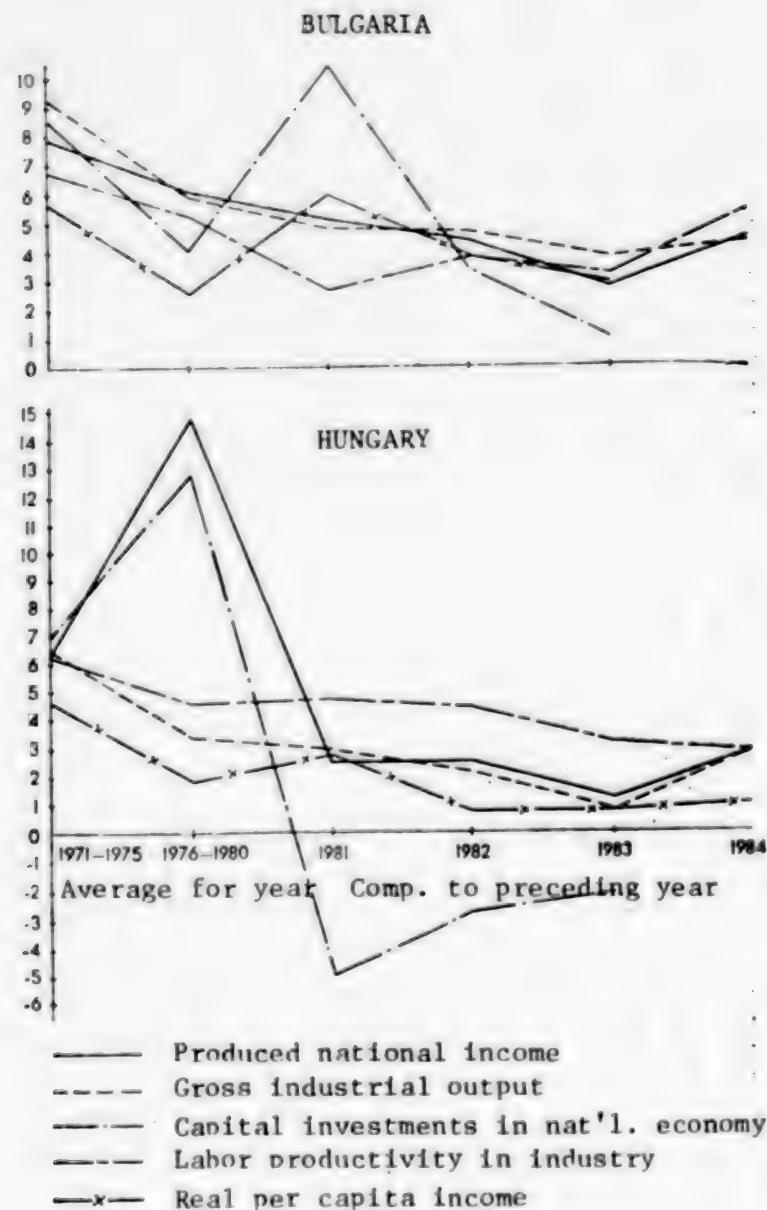
But the improvement of international economic relations and the development of business cooperation between East and West with equal rights and on a mutually advantageous basis depends on many factors. It seems that it would be useful to consider them in more detail.

International tension, which has increased significantly because of the aggressive circles of imperialism, mainly American, is creating a situation of mistrust and instability for business cooperation among countries with different social systems. Of course, economic and political problems are closely interconnected and condition one another, but today politics has the decisive word. Without improving the international political climate it is impossible to count on any essential progress in trade between socialist and capitalist countries.

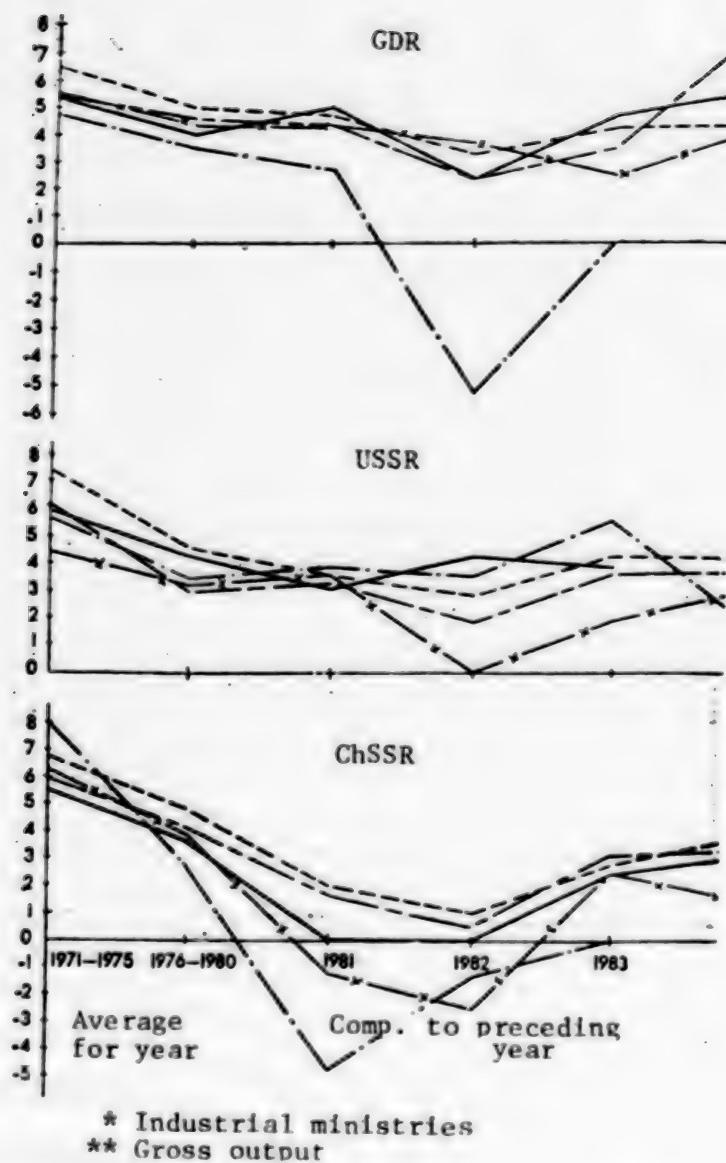
The world economy itself is in need of improvement. Many countries of the world, mainly developing ones, are suffering from serious ailments. But the countries of socialism too are part of the world economy, from which they cannot be separated by impenetrable boundaries.

Of course the condition of trade between East and West is influenced by economic problems and the interests of both sides. The European CEMA

countries are now overcoming no small difficulties related to the changeover of their economies to the intensive path of development. This has been reflected in the rates of their economic growth. Right up until 1983 they were slowing down. Export possibilities and the import needs of these countries and their relations with the West had decreased. Trade is also complicated by the need to pay off the indebtedness of certain CEMA countries in freely convertible currencies. It is being reduced mainly as a result of limiting imports from capitalist countries, since it is fairly difficult to expand exports under conditions of an insurmountable crisis decline of the market conditions and growing protectionism in the West.



Rates of Increase in Indicators of Development of CEMA Countries, %



* Industrial ministries
** Gross output

Rates of Increase in Indicators of Development of CEMA Countries, %

In 1983-1984 the situation in the economies of the majority of the CEMA countries had improved. The rates of their economic growth had increased by more than one point, and the net indebtedness in hard currency had increased. Unfortunately, this is not enough to improve economic ties between East and West for they depend primarily on the global political and economic situation.

In the capitalist economy after the crisis of 1980-1982 (the most severe in the postwar decades) there was an unstable improvement. But many of the consequences of the crisis have still not been overcome. The volume of industrial production in the OESD countries² in 1983 was lower than in 1979 and not until 1984 did it exceed this level somewhat. After 2 years of

stagnation and reduction, the volume of world trade in unchanging prices increased in 1983 by 2 percent (according to the data of the European Economic Commission of the UN--by 0.5 percent) and reached the 1980 level. In 1984 its increase in current prices was 4-5 percent, and in unchanging prices--9 percent.

The East-West sector accounts for only 3-4 percent of the overall volume of world trade. But in recent years industrially developed capitalist countries have accounted for 26-30 percent of the foreign trade of socialist countries. The OESD share of foreign ties with the socialist world is several times lower, but they too (especially West European) are unable to ignore them both because of considerations of economic advantage and because of political motives.

In the first half of the 1970's the average rates of increase in commodity turnover of the CEMA countries and the West amounted to 22.7 percent, in the second half--13.2 percent, and at the beginning of the 1980's the retardation of rates was replaced by stagnation. In 1983 there was an enlivenment as a result of expansion of trade between the CEMA countries and Western Europe. But, as one can see from OESD data for the first 8 months of 1984, the year ended with a certain reduction of the volume of East-West trade.

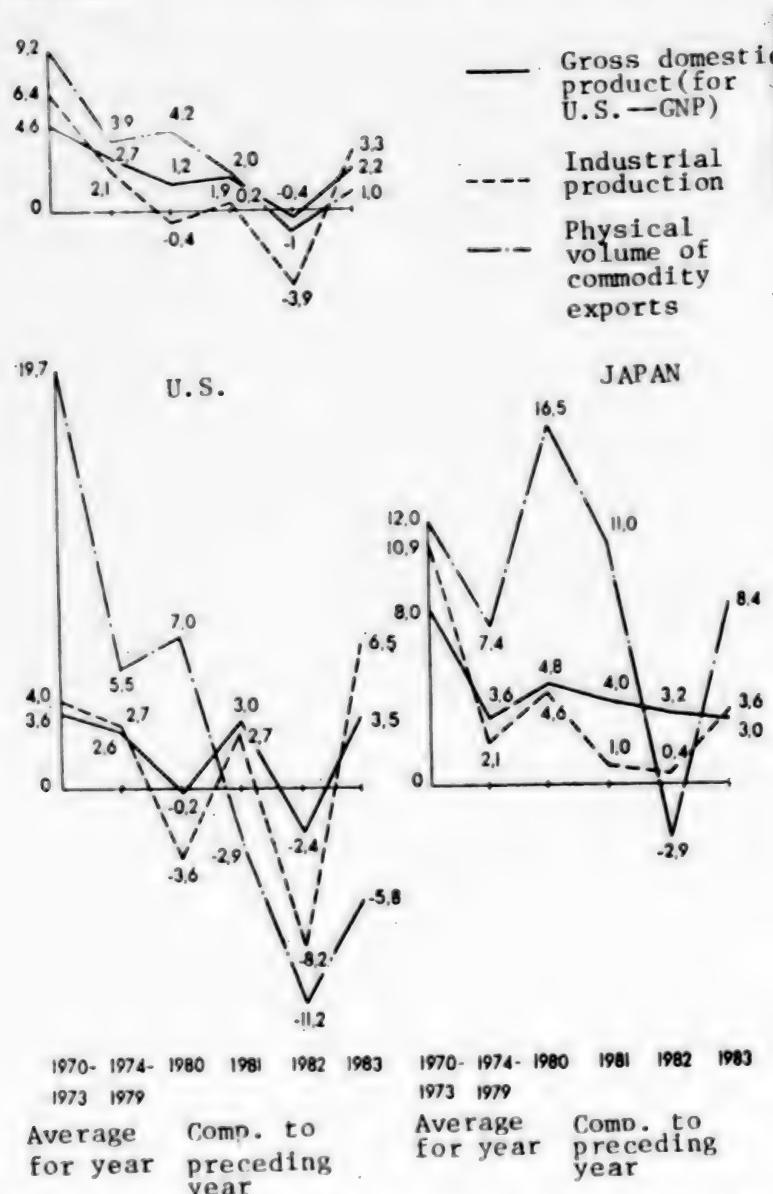
Although the CEMA countries have managed to improve their balance of accounts with the West and somewhat reduce their indebtedness in hard currency, many other crucial problems of business interaction still need to be solved, and particularly it is necessary to improve the commodity structure of exchanges. In the exports of the CEMA countries to the West, as usual more than 75 percent are fuel-raw material and foodstuffs, and manufactured items comprise only about 25 percent, including 7 percent for machines and equipment. This structure is practically not improving and therefore the prospects for expanding exports are still slight.

Unemployment and inflation continue to be crucial problems for the OESD countries. In 1983 the number of unemployed here had increased by 2 million and reached a record postwar level--29.6 million. In 1984 this figure decreased by 1.1 million, mainly as a result of a certain increase in employment in the United States. Recently the growth of inflation in the capitalist world has slowed down somewhat, but it still remains significant. Consumer prices in the OESD countries increased in 1983 and 1984 by more than 5 percent (in 1982--by 7.8 percent).

The U.S. Budget Policy

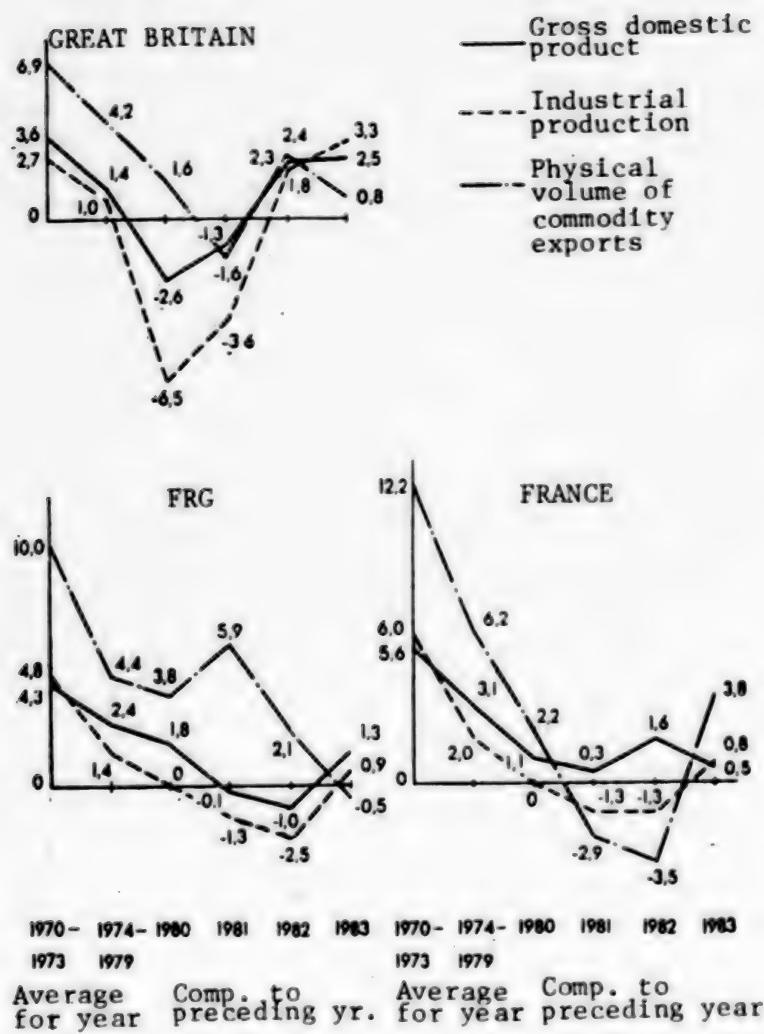
The United States and its currency exert a significant influence on the condition of the international financial system. The arms race and the striving for military superiority are a heavy burden on the U.S. budget, which is increasingly being balanced through increasing the state debt. During the past 10 years the U.S. state debt has tripled and in 1983-1984 reached the astronomical figure of almost 1,600 billion dollars, and the interest on it is \$150 billion or 18 percent of the expenditure part of the budget (1980--12 percent, 1970--9 percent), and the budget deficit is about \$200 billion (1982--\$110.6 billion, 1981--\$57.9 billion and 1971--\$23.0 billion).

According to predictions of FORTUNE magazine, in 1985/1986 the budget deficit will exceed \$200 billion.



Growth Rates of Indicators of Development of OECD Countries,
the United States and Japan, %

Essentially half of the U.S. budget deficit is financed through income from abroad. "Europe and the Third World have earned the honor of contributing in spite of their own desire to the revival of the American economy," wrote the French magazine MONDE DIPLOMATIQUE in June 1984. To this one can also add the honor of paying for the gigantic program of the arms race which is being carried out by the Reagan administration. According to an estimate of time magazine, in 1984 a total of more than \$100 billion in capital came into the United States from abroad.



Growth Rates of Indicators of Development of Great Britain, FRG and France, %

Remark: In 1984 as compared to 1983 the gross domestic product increased (preliminary estimate) in the OESD countries by 4.8 percent; in France--by 1.9 percent and in Great Britain--by 2.0 percent; the gross national product increased in the United States by 6.8 percent, in Japan--by 6.8 percent, and in the FRG--by 2.5 percent; the volume of industrial production increased in the OESD countries by 7.1 percent, in the United States--by 10.7 percent, in Japan--by 11 percent, in the FRG--by 3.5 percent, in France--by 2.3 percent and in Great Britain--by 0.2 percent ("The Capitalist Economy in 1984," MEMO, No 3, 1985, pp 63, 64).

The influx of capital into the United States is stimulated by the excessively high interest rates on bank credit and the artificially increased exchange rate for the dollar.³ In 1980 these rates were at an unprecedented level of

21.5 percent, and by June of 1984 they had dropped to 13 percent, and December --to 10.8 percent, but still this is much higher than the level that is normal with the current rates of inflation in the United States. The purchasing power of the dollar has increased by 35-40 percent abroad.

The reason for this is the budget shortage and the immense government loans. Foreign capital comes into the United States since profit from these investments are considerably higher there than in other countries. Additionally, foreign investors, according to recently changed American tax rules, do not have to pay taxes on their dividends. But the high bank interests do not encourage entrepreneurs to make investments in fixed capital for production needs. They frequently prefer to invest money in banks or in paper money. This leads to a slowing up of the rates of economic growth. In turn, the budget deficit is increasing even more. The deficit of the payment balance for current operations more than doubled in 1984 as compared to 1983 and reached \$90 billion, and it is expected to reach \$120 billion in 1985.

The richest country in the world, by the admission of the chairman of the U.S. Federal Reserve system, is on the verge of becoming an international debtor. In 1983 U.S. assets abroad amounted to \$834 billion, and foreign assets in the United States--\$711 billion. In 1984 the U.S. foreign indebtedness increased even more and there are no signs of a break in this dangerous tendency in the near future. Taking advantage of the privilege of its unique position in the international financial and trade system, the United States is acquiring its well-being on credit on an unprecedented scale. "Instead of responding to the appeal to establish under an international policy a balanced cooperation and stability in the 1990's," notes the former director of the International Institute of Strategic Research in London, Christoph Bertrile in the newspaper INTERNATIONAL HERALD TRIBUNE on 29 November 1984, "the United States prefers to pursue its own national interests. We are returning to a situation in the world where the strong do what they want to...."

The opinion that the immense trade deficit of the United States stimulates exports in other countries and through this an economic upsurge is hardly convincing. In reality it leads to a one-sided outflowing of resources from the exporter countries and reduces their investments in their own fixed capital. Moreover, as the result of the artificially increased rate of exchange of its own currency, the United States is exporting inflation to other states since the import of goods whose prices are established in dollars are costing the consumers more and more in these countries. According to data of the German Bank (FRG) the high exchange rate of the dollar is leading to higher costs of about 30 percent of all the imports of the FRG, and as a result inflation is growing here. As many West European politicians and economists think, in Western Europe the rates of development have slowed up and mass unemployment is increasing exclusively because of the pumping of funds into the United States and the increased cost of imports.

Especially dangerous under these conditions is the immense indebtedness of the developing countries, which exceeded \$812 billion by the end of 1984. This requires annually more than \$110-140 billion in payments to keep up the debt. The debt taken under "floating" interest rates automatically increases when the rate in the United States increases. The debtor countries are now forced

to spend up to 60 percent of their export revenue (1979--36 percent) to maintain the debt.



The Share of Western Europe, the United States and Japan in the Exports of Industrial Goods of Industrially Developed Capitalist Countries, %

The net income of resources into developing countries in the form of credit, investments and official aid from the OECD countries decreased from \$132 billion in 1981 to \$103 billion in 1983, and the outflow in the form of payments on debts and dividends to foreign investments is steadily increasing.

International financial mechanisms redistribute incomes in favor of the rich countries of the West. The developing debtor countries end up in slave-like dependency from which no escape can be seen. Their ability to pay is not improving and the deficit of the payment balance for current operations in 1984 was estimated at \$40-50 billion.

In order to increase export earnings the developing countries must work their way out of the severe economic crisis in which they ended up under the influence of the depression in the industrially developed countries of the West, provide for high rates of economic growth and increase the production of export goods, mainly manufactured products. This requires a simultaneous increase in the importing of machines and equipment, spare parts and materials for maintaining and developing their own industry. But the burden of payments for maintaining the indebtedness is making it necessary to reduce imports. They are not managing to increase exports by the necessary amount because of the low demand and the deterioration of trade conditions. From 1980 through 1983 the exports of developing countries decreased by \$114 billion or 26 percent. According to estimates of the American economist W. Klein, solely because of price reductions on the raw material and fuel they export the developing countries lost \$79 billion in 1981-1982. In the first half of 1984 the exports of these countries increased, according to existing data, by 15 percent.

Multifaceted Protectionism

Resolving trade differences among the capitalist countries and also between them and the socialist and developing states is complicated by large-scale

protectionism which is now assuming the most distorted forms: "Voluntary limitations on exports," a regime of minimum prices on certain imported goods, strict administrative rules and so forth in addition to higher custom rates. Agreements for "voluntary limitation on exports" reflect a tendency toward the creation of supernational mechanisms for regulation of international trade. The basic nuance here is the shifting of control over imports beyond the borders of the importing country. The establishment of minimum prices for foreign goods is a method of direct intervention in the competition between domestic and foreign producers. This way certain branches are insulated from price competition on the world market. Thus their accelerated technical and organizational restructuring is financed to the detriment of the rest of the sectors in the national economy.

According to data of the London Institute of Social and Economic Research, in 1980 various nontariff restrictions affected 59 percent of the imports in Japan, 52 percent in Italy, 48 percent in Great Britain, 47 percent in the FRG and 43 percent in France.

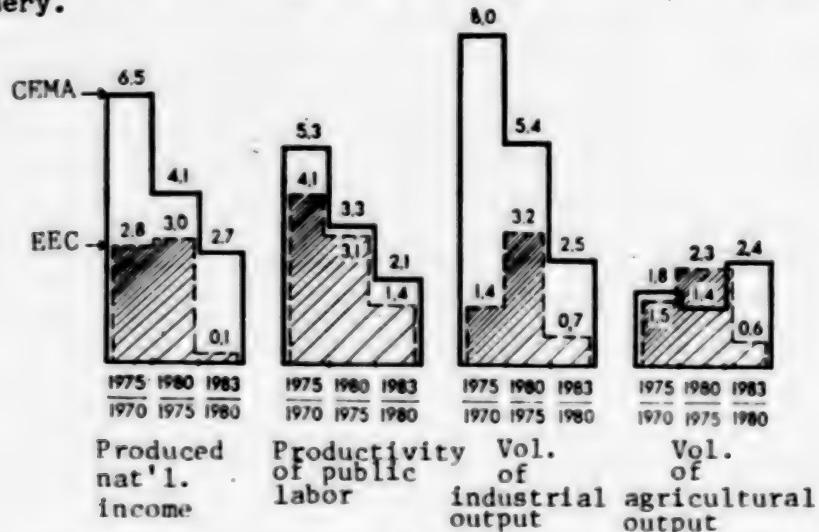
The industrially developed countries of the West are spending 3-5 percent of their total national income on subsidizing their producers and exporters. At first they subsidized mainly the agrarian sector, but now they are subsidizing branches of industry. These states are trying with the help of protectionist measures to isolate from foreign competition those industries which have ended up in a difficult position as a result of rapid technical progress or short-sighted economic and technical policies. We are speaking about metallurgy, automotive construction, rubber, shipbuilding, textile and other "old" branches, and also new ones--for instance, household electronics.

In the summer of 1983 the United States introduced restrictions on the importing of 11 kinds of steel from the European Economic Community (EEC)⁴ for the next 4 years. According to the estimates of the Commission of European Societies, losses of West European producers as a result of this action during the given period will amount to no less than \$570 million. The EEC responded with a demand for reimbursement for losses, threatening to introduce countermeasures. To increase rates on imports of American chemical goods and plastics, to limit the import of sports equipment, and so forth.

Protectionism is frequently motivated by a need to preserve jobs. But in fact the benefits received by the branches taken under protection are used to introduce modern technology, which reduces employment. "The industrially developed countries continue to instill in developing countries the idea that it is necessary to liberalize their imports, but they themselves are more and more extensively resorting to tariff and nontariff restrictions in order not to allow their exports onto their own markets"--wrote TIMES OF INDIA in June 1984. All kinds of restrictions apply to 40 percent of the exports from Asia, Africa and Latin America and an even larger proportion of exports from the socialist countries.

As historical experience shows, protectionism in order to protect newly created industry can be justified. But there is no justification when it comes to financially and industrially strong powers: this reinforces their

dominance in the world economy and prolongs exploitation of the former colonial periphery.



Average Annual Rates of Increase in Indicators of the Development of CEMA and EEC Countries, %

Protectionism and various discriminatory measures supplied by countries of the West in trade with developing and socialist states impede the improvement of the world economy. Especially intolerable are trade prohibitions and credit and technological blockades for purposes of political pressure on other states. Unfortunately the American administration and, under its influence, other NATO countries as well are still taking this path. Closing off various channels of economic exchange with developing and socialist states, they themselves are being deprived of important sales markets.

Positive Changes in the Technical Bases

The striking changes in science and technology do not go without consequences for the world economy and relations between East and West. Electronics, new materials, new resource-saving technologies, atomic energy, robots, manipulators, space equipment, jet aviation, supersensitive and superprecise control and measurement instruments, principally new telecommunications, biotechnology and so forth are revolutionizing production, transportation and communications and are opening up new possibilities for improved well-being.

The production and export of science-intensive products⁵ are increasingly being concentrated in the leading capitalist powers--the United States, Japan, the FRG, England and France. And many traditional but not so complicated productions (especially those that have been experiencing a decline or pollute the environment) are gradually shifting from these countries to the "periphery," including to the developing states. These are subbranches of the textile and chemical industry, metallurgy and industries which involve monotonous labor of assembly machine building and electronic items and so forth. According to predictions, by 1990 up to 36-38 percent of the world export of manufactured clothing, 80 percent of the textiles, 25-27 percent of the leather items and footwear, and 7-10 percent of the mass-produced items made of metal will come from developing states.

But production capacities are being transferred irregularly from developed capitalist countries to developing ones, and without taking into account the basic interests of the latter. This, as a rule, is not cooperation between interested governments, but private decisions of individual transnational corporations.⁶ As a result, structural changes in the economies of developed ("reindustrialization") and developing countries are not intercoordinated and the division of labor is largely formed at the will of the market.

On the markets of the West there has been an increased competitive battle against the appearance of a new group of exporters of industrial goods--the so-called new industrial states (Brazil, Argentina, Mexico, South Korea, Taiwan, Singapore and Hong Kong). Their share of the imports of the OECD countries approximately doubled from 1970 through 1981, particularly with the United States--from 9.8 to 15.2 percent. In the exports of these states the proportion of leather items, clothing, radio and photoelectronics, communications equipment, road and sports goods, toys and declarations reaches 40-60 percent. A large part of these products are produced by branches of transnational corporations and the production depends strongly on the import of components and materials. The main economic prerequisite for rapid development of exports from the new industrial states is the chief labor force in them. But automation of production, the introduction of robot technology and energy-saving technology in the developed countries can significantly weaken the influence of this factor: labor force itself which is released this way needs additional jobs.

With the changeover to the new stage in the scientific and technical revolution they have begun to make more extensive attempts to take advantage of their technical superiority as a weapon of foreign policy and competitive struggle.

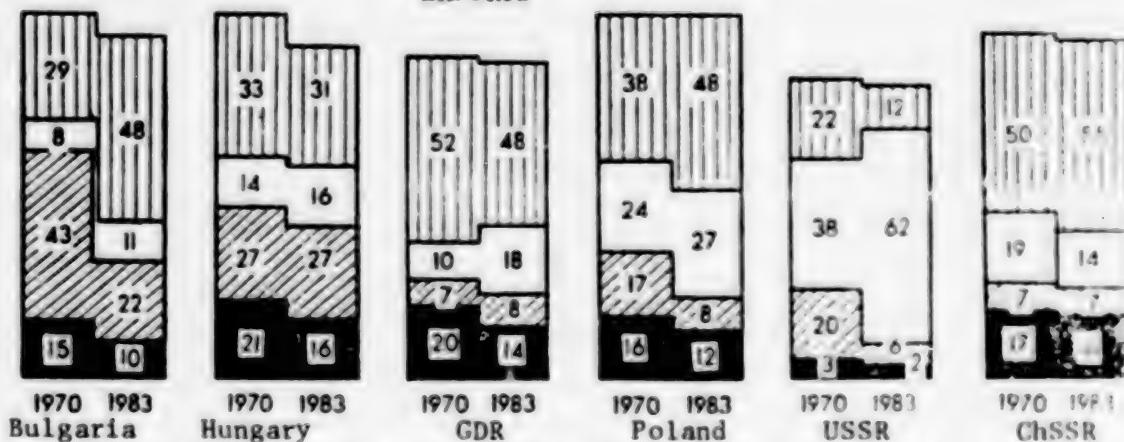
The interests of the socialist states are also suffering to a certain degree from limitations on the acquisition of the latest technical equipment and technology. The most indicative in this respect is the situation with computer technology which the United States not only rigidly controls themselves, but also exerts pressure on its NATO allies and Japan through the COCOM.

At a COCOM meeting in July 1984 the United States reached an agreement among the member countries of this organization for collective measures for essentially limiting exports of technology for "dual application"⁸ to socialist countries in the vain hope of keeping the scientific and technical development of the importer countries in a state of "controlled backwardness," selling them only obsolete equipment. The ban is extended, particularly, to many types of computers, micro- and minicomputers, software and programs which could be used for developing technology whose delivery is prohibited. Life has repeatedly confirmed the complete groundlessness of such a policy.

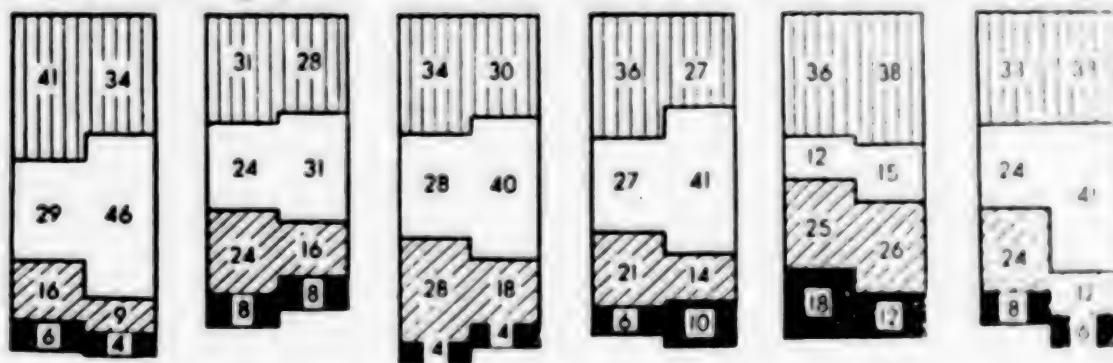
While strengthening their collective technical-economic and technological potential, the countries of the socialist community, as the economic conference in June 1984 showed, certainly are not striving to isolate themselves from the rest of the world in the scientific and technical sphere,

where exchanges and contacts are objectively inevitable. We are speaking only about becoming strong enough in the vitally important areas of scientific and technical progress and, if necessary, resisting blackmail and pressure. The CEMA countries are interested in scientific and technical cooperation with the West with equal rights and mutual expansion of access to the markets of advanced technology. One can only regret that the capitalist powers, which hold leading positions in individual areas of scientific and technical progress, are trying to rope off the Soviet Union and other CEMA countries with a technological cordon. This weakens their competitive positions in world trade and at the same time stimulates scientific and technical integration within the framework of the CEMA.

EXPORTS



IMPORTS



- Machines, equipment, means of transportation

- Fuel, mineral raw material, metals

- Raw material and nonfood products from processing it. Raw material for producing food products, food products

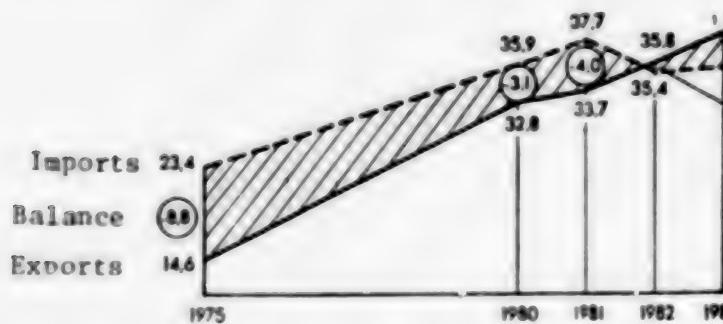
- Industrial consumer goods

Proportion of Fixed Items of Exports and Imports of CEMA Countries,
% of Total for Country

"The achievements of the scientific and technical revolution can no longer make one country or group of countries into a monopoly," said M. S. Gorbachev at a meeting with business circles in Great Britain. "It is necessary to have extensive international cooperation and, in my opinion, there is a possibility of this. We need more realism and confidence in one another.

During the 1980's the idea of expanding scientific and technical cooperation between the East and Western Europe came up in a new way. It is based on a certain mutual augmentation of their scientific and technical potentials. The socialist states and above all the USSR have a considerable scientific stockpile and a developed scientific infrastructure in fundamental theoretical research while the West European countries have a powerful production base for assimilating and mass producing new developments. In a situation where technologically they clearly lag behind the United States and Japan, the countries of Western Europe are undoubtedly taking advantage of the large reserve in this area--deepening cooperation with their East European partners.

The increasing discrimination and protectionism on world markets and the deterioration of the overall economic market conditions are causing the CEMA countries to take advantage of their ties with Western firms along the line of cooperation and barter transactions to a greater degree than before. These lead to a growth of bilateral deliveries which make it possible to obtain a positive balance and to overcome protectionist and other barriers with reduced losses. These include joint production on the basis of division of production programs or specialization, including scientific research and experimental design work; joint and mixed enterprises; cooperation on markets of third countries and so forth.



Foreign Trade of the CEMA Countries With Industrially Developed Capitalist Countries in Current Prices, billions of rubles

Views to the Future

The present business relations between the socialist countries and the nonsocialist ones cannot be called normal. They reflect above all the crisis condition of the capitalist economy. Of course a planned system of management protects the socialist countries from foreign influences to a certain degree. At the same time the condition of the world economy complicates their exporting of raw material, foodstuffs and manufactured goods to markets of the West and the elimination of indebtedness and interest on it, and it leads to

losses because of unfavorable ratios between export and import prices, inflated interest rates, an artificially inflated value of the dollar, protectionism, and the discriminatory trade and credit policy of the West.

The new revival that has been observed in business cooperation between East and West, in our opinion, is very unstable and there is not much hope that in the future formulas will be found for effective treatment of the serious ailments that are inherent in the capitalist economy. It is necessary to have changes in the structure of socioeconomic relations within these countries and among them. But these are impeded by the conservatism of many political and economic structures which preserve conditions that engender crisis. The movement for a new international economic policy opens up the prospects for democratization of relations in the world economy and weakening of certain conflicts inherent in it. But its requirements are encountering a good deal of resistance from imperialist circles.

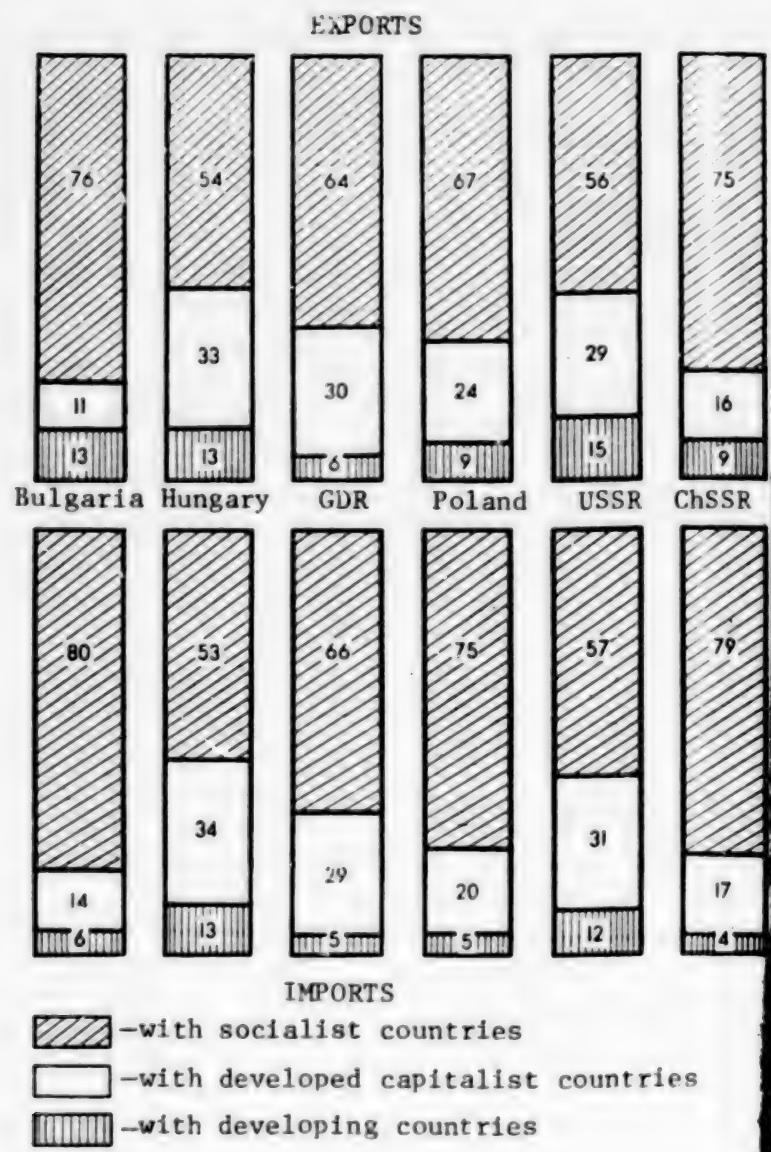
If one is to remain in reality when evaluating future development it must be recognized that hopes can no longer be placed in power solutions. Thus voluntary, mutually advantageous cooperation with equal rights of all groups of states and the development of a coordinated economic strategy are capable of providing a way out of the growing difficulties. It is necessary to look together for optimal solutions for regulating the economic life of the world community, creating favorable conditions for commodity exchange and the much-needed rearrangement of the structures of world production and trade, efficiently utilizing production capacities, labor resources and raw material and energy supplies, and protecting the environment. It would be useful to develop an effective reform of the international currency system, to legally formulate and normalize relations between the CEMA and the EEC, and develop measures for strengthening mutual confidence in the economic sphere. It is crucial to have preliminary consultation among involved parties regarding trade-economic and currency-financial measures undertaken by individual countries which could harm the normal functioning of the world economy.

Business cooperation with the socialist countries which are developing their economies on the basis of five-year plans and long-range programs can introduce an element of stability and greater durability into the system of foreign economic ties with countries of the West, especially European ones.

The plans of the CEMA countries for 1986-1990 will serve as a reliable reference point for those business circles which are interested in expanding long-term trade and economic ties with the countries of socialism on the basis of reciprocity and mutual advantage and in searching for intensive new forms of this cooperation.

The changeover of the economies of these countries to the path of intensive development will increase their export and import capabilities and will change the structure of supply and demand. The CEMA countries will strive to increase the effectiveness of their imports as a result of expanding the purchases of systems of machines and technological lines for reconstruction machine building, the industrial and agricultural infrastructures, and light and the food industry, as well as introducing industrial technologies into agriculture. There are good prospects for the construction in these

countries, with the help of Western firms, of enterprises that are ready to begin operation, including medium-sized and small ones.



Distribution of Foreign Trade of CEMA Countries in 1983,
% of Total in Country

On the other hand, programs for the development of industrial and scientific-technical integration within the framework of the CEMA envision strengthening of the competitive positions of the countries of this organization on Western markets. Here is raised the task of better utilization of mainly their immense scientific and technical potential, although there is also to be an improvement of fuel-raw material and food exports which will be possible because of importing products with a greater degree of processing and increasing the proportion of semimanufactured products.

Positive strides in the business cooperation between the East and West requires steady observance of the principle of equal rights and mutual advantage. "As concerns relations with capitalist states," announced General Secretary of the CPSU Central Committee M. S. Gorbachev at the March (1985) Plenum of the CPSU Central Committee, "I should like to say the following. We shall firmly follow the Leninist course toward peace and peaceful coexistence. The Soviet Union will always respond to good will with good will, to confidence--with confidence. But all must know that we must never abandon the interests of our homeland and of our allies."

FOOTNOTES

1. KOMMUNIST No 9, 1984 p 30.
2. The Organization of Economic Cooperation and Development (OECD) joins together practically all of the developed capitalist countries: 24 and 26 according to the UN classification, except for Israel and the UAR. The OECD was created in 1961 with staff headquarters in Paris (ed.).
3. In 1980-1983 the exchange rate of the dollar as compared to the West German mark increased by 28 percent, to the Japanese yen--by 12 percent, to the French franc--by 46 percent and to the English pound sterling--by 39 percent. In March 1985 a kind of record was set: one dollar was worth 3.48 West German marks, while in 1980 it was equal to 1.82 marks.
4. The EEC countries: Belgium, Great Britain, Greece, Denmark, Ireland, Italy, Luxembourg, The Netherlands, France, the FRG (ed.).
5. Among the science-intensive products specialists of the U.S. Department of Commerce include products in whose conventional net value expenditures on scientific research and experimental design work comprise no less than 10 percent.
6. Today these corporations control more than one-third of world trade, and up to two-thirds of the raw material and a considerable proportion of the manufactured items exported by developing countries goes through their hands. By monopolizing the infrastructure of the world economy (transportation, communications, information processing, banks, currency exchanges and warehouses) and the intermediary functions to a much greater degree than export-import goods, the transnational corporations are acquiring immense power over production and consumption, to the detriment of the interests of many countries.

7. The Coordinating Committee of the North Atlantic Bloc for Trade and Economic Ties With Socialist Countries (COCOM) was created on the initiative of the United States in 1950 in order to coordinate measures for the economic blockade of the socialist countries. The strategic lists of the COCOM in that period included up to 2,000 commodity positions and encompassed up to 50 percent of all the commodities in circulation in international trade (ed.).

8. That is, technologies which could be used militarily.

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PAPERWORK REGARDED AS BURDEN FOR MANAGEMENT

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 171-181

[Article by A. B. Felzer, candidate of economic sciences, Institute of Consumers' Cooperation of the UkrSSR Ministry of Housing and Municipal Services (Kiev): "The Manager and the Document: Who is Who?"]

[Text] In a year each manager has to read over 40,000 pages of text. The hopes of reducing the paper flow with the help of automated control systems have not been justified...."

(From PRAVDA, 9 February 1979)

Yes, managers are overloaded with work with documents. Is it possible to reduce the number of them? The science and practice of management are of the same opinion: yes, it is possible. Let us try to show how this can be done.

More than half of the documents that cross the manager's desks are incoming. Hence the first problem is to reduce the number of incoming documents.

Theoretically, too extreme variants are possible:

- 1) to have the entire flow of incoming documents cross the desk of the manager and
- 2) not a single one of them reaches him, having found someone to act on them in the interior of the organization.

In the former case it is as though the manager holds his hand on the pulse of his organization, courageously, fighting with paperwork until he is exhausted, and in practice putting off other matters. His subordinates mainly keep track of this titanic battle, rendering assistance to the manager as much as they can. And the result? Overloading of one and underloading of all the rest, with all of the social and psychological consequences that ensue from this, inadequate attention to strategic issues.... Moreover, this approach still does not make it possible to make efficient decisions concerning the incoming documents.

Even a manager as wise as Solomon cannot do without the assistance of his subordinates, and they cannot do without him. But because of poorly organized routes of movement, lengthy processing and poorly organized delivery, up to 40 percent of the directive, reporting and informational documents are late in reaching the people who are to act on them or else they do not reach them at all.

Here is a typical situation. A letter from the deputy chairman of the oblispolkom was addressed to the deputy minister. Having looked it over on the day it was received the deputy minister sent the document to the chief of the administration, who was not to return from a business trip for 3 days. Then the letter waited a day for the division chief and, as a result, the person who was to act on it did not receive it until 8 days after it was registered. What kind of executive efficiency can there be when the documents must go through so many levels of the hierarchical ladder from top to bottom and back?

The latter variant completely relieves the manager of routing work, but it does not enable him to keep up with the most important events. This variant is unfeasible because it excludes the manager from the daily life of the organization.

As frequently happens in cases like this, the truth lies somewhere between the two extreme variants. Let us break down the flow of incoming paperwork into three channels. One of them includes documents that require narrowly specialized knowledge and the competence of the subordinates alone, and it bypasses the director. The second contains documents that require the preparation of a decision in a division, and it arrives at the director after this preparation and, as a rule, only once--for his signature. Finally, the third flow includes documents that go immediately to the director. These include decisions of party and soviet agencies, orders from the ministry, proposals, statements and complaints from citizens, the most important messages from the management of other enterprises and other significant documents. The manager must make a decision regarding them immediately or in any case no later than the next day.

If the manager needs assistance it should be clear to his subordinates exactly what he requires. Usually if there is no resolution the decision is made by the worker. But this may not coincide with the viewpoint of the manager and then the document prepared by the workers returned to him with remarks. The time has passed and labor has been in vain. And all because the manager did not promptly express his attitude toward the issue.

The policy presented here for consideration of incoming documents has long gone beyond the framework of proposals of scientists and specialists. It was envisioned by the unified state system of business correspondents and is being practiced successfully at enterprises, for example, in the Okhta Plastopolimer Association, the Krasnoyarsk Television Plant and others. Only, unfortunately, there are not enough of them.

Let us now consider how to divide up the unmanageable flow of incoming documents into management channels. Here it is convenient to use a preliminary consideration of the documents. An intelligent worker who is familiar with the tasks of the enterprise and the functions of the subdivision considers all incoming documents and forms them into three flows. This function can be performed by a document evaluator or the manager's assistant who is in charge of the office or the general division, a correspondence inspector, an engineer for monitoring executive actions, and in small institutions--the secretary. On this instructions the manager characterizes the capabilities of his subordinates who are in charge of the subdivision and indicates their functions in order to orient the people who will be handling the preliminary consideration of the documents. Confusion will be inevitable at first, but after 2 or 3 weeks things will begin to run smoothly and the manager will feel this.

A most important condition for the success of the method of preliminary consideration of the documents is efficient distribution of functions among people who are directly subordinate to the manager, structural subdivisions and individual workers within them. Without this it is impossible to correctly direct the documents for consideration. A correct division of functions in general is the foundation for the organization of management work and a necessary element in efficient document circulation.

The UkrSSR Glavsnab received a letter from the director of a machine-building plant. The assistance chief of the main board sent it to the administration of the electrical industry. From there after a couple of days the document was redirected to the chief of the administration for machine-building products--with the note "Through the proper channels." After a week the latter sent the letter to the chief of UkrGlavyazhmash which, in turn, redirected it to the chief of the administration for batching items for enterprises under construction. And not until 20 days later, after special intervention and clarification, was this letter returned for action to the chief of the administration for machine-building products.

The main problem here lies not with the workers and not with the document, but with the confusion of the functions of organization and the lack of clarity about who is responsible for what. How many situations like this appear every day in the administrative staff?

If the functions are not distributed properly the manager is doomed to the unenviable destiny of being an arbiter in the constant conflicts among his subordinates regarding who should have received one document or another. Misunderstandings, arguments, mutual accusations and so forth cannot be avoided. Situations in which today a certain issue is considered in one division and 3 months later--in another are inevitable. All this, naturally, worsens the business situation, the relations among workers and executive discipline. In the end, in one way or another the manager will be drawn into work on documents and the circle closes.

How to reduce the number of outgoing documents that reached the manager?

Outgoing documents come to him, as a rule, for his signature or approval, and rarely for coordination (we are speaking about managers of enterprises; for chiefs of subdivisions the proportion of documents for coordination is higher). The problem is that a considerable part of the outgoing documents have been signed by managers of structural subdivisions and services.

This policy, naturally, reduces the number of outgoing documents that go through the office of the manager. In order for this policy to "work," it is first necessary again to clearly distribute the functions among managers and people to whom they delegate some of their authority.

Industrial associations, main boards, ministries, supply organizations and supply enterprises, pursuing a noble goal of reducing correspondence, refuse to consider documents if they have not been signed by the director or his deputy. Understanding "prestige" incorrectly leads to a situation where the former individuals are forced to sign millions of documents concerning current operational, administrative-economic, production, report, supply-sales and other issues.

Managers of enterprises whose document circulation amounts to 20,000-30,000 units (these are far from the largest enterprises) annually sign no fewer than 20,000 organizational and instructive documents alone, not to mention agreements, statistical and financial reports, schedules, plans and so forth. Reviewing a document and signing it takes approximately a half minute. Thus the managers spend 20-25 days a year just signing documents.

The ministry requests from its enterprises various information, reference guides and so forth. Is the signature of the chief of the planning division who himself draws up or is in charge of the preparation of the document less authoritative in this case than that of the director?

Plant A requests a change in the plan for deliveries under cooperation, simultaneously submitting the corresponding request to the consumer--Plant B. What changes in the decision of the higher organization if the letter is signed not by the director but by the manager of the service for outside cooperation (after coordinating this with the production chief)?

A common announces that because of an order from the ministry a group of specialists has been sent out to construct a gas line and therefore the workers whose qualifications are to be increased in keeping with an order from the ministry cannot attend the institute for increasing qualifications in September-October. The document has been signed by the director but the situation was well-known in the ministry and the signature of the chief of the personnel division would have been quite adequate.

The refusal of the higher organizations to consider documents without the signature of the top manager certainly does not reduce correspondence: for the manager practically never refuses to sign something if his subordinate considers it necessary to send the document to one place or another, the more so if the document is a response to a letter from some organization.

The signatures of managers on documents which do not require their attention create unnecessary zigzags in the document circulation of the senders. This reduces the efficiency and complicates the work of the recipients. The recommendations of the unified state system for business correspondence regarding this are extremely clear: "Documents which do not require the signature of the manager of the institution should be sent for the signatures of managers of the structural subdivisions in keeping with their competence." And further: "Reports, report notes, reference material and other documents of an informational, referential or analytical nature can be signed by the executive if the issues resolved there do not go beyond his authority." As we can see, the formal-legal aspect of the matter has already been observed. The time has come to change from words to actions. Respected managers of ministries and departments, main boards and industrial associations and structural subdivisions of these institutions! Regarding a whole number of issues, a competent and responsible dialogue could be held with you (both oral and written) not only by directors of enterprises, but also by managers of administrations and divisions of production associations, enterprises and a number of organizations.

In addition to those advantages already discussed this will have an immense educational effect. Thousands of people will have a sense of their real, actual, tangible participation in management and will receive greater satisfaction from their work.

This problem has another aspect. Even the most experienced and capable managers when signing documents into whose content they do not have time to delve require a multitude of certificates of coordination. They assume that a many-sided evaluation of the document by those who certify it will reduce the probability of a narrowly professional subjective or even erroneous approach to solving the problem. There is undoubtedly some common sense in this. But this approach sharply reduces the responsibility of the managers of the services and subdivisions. The signature of the first individual absorbs the responsibility of these people for solving even small problems of the current activity of the enterprise or institution.

The conclusions of Mannheim University Professor Witte are of interest. He investigated the process of decision-making using data from 2,400 enterprises. He compared the influence of various factors on the decision-making process. It was established that the decision is developed most rapidly when a considerable part of the process is carried out by someone else. In other words, the efficiency of management increases if the documents go directly to the person who is to act on them, bypassing the management levels.

The managers of certain enterprises give their subdivision chiefs the right, within the limits of their competence, to conduct correspondence on behalf of the enterprise. This is what is done, in particular, at the Okhta Plastopolimer Association. More than 10 years ago at the Zhdanov Heavy Machine-Building Plant instructions were improved which determined the list of issues which managers of subdivisions of the plant administration could resolve. Since that time these managers have been corresponding independently with many addressees.

Norm document communication helps to reduce the number of outgoing documents that pass through the office of the manager: the establishment between the managers of enterprises of trusting (in the business sense of this word) relations which would make it possible to solve the problems that arise on the basis of verbal agreements or, in the extreme case, the briefest possible kind of correspondence, and also the development of nondocument means of exchanging information in the activity of the staff, which will make it possible in principle to reduce the number of outgoing documents.

It should be noted that delegating authority is unthinkable without increasing control functions. The more that is entrusted to the subordinates, the higher should be the confidence that they will correctly perform the functions delegated to them.

How To Reduce the Number of Internal Documents That Go Into the Manager's Office?

If one is to speak about orders, dispositions, instructions, provisions, guidelines and so forth, one cannot do without a general improvement of organization and executive activity and a constituent part of it--business correspondence. It is possible, for example, to reduce the number of orders regarding personnel by combining the orders regarding personnel into one, for example, publishing no more than one order regarding personnel a day (there are enterprises that publish more than 1200 of them a year). It is possible to reduce the number of signatures of managers when filling out business documents: some enterprises can make do with one or two signatures while at others five or six of them are required. It is possible to reduce the number of signatures of managers when documenting various actions of workers of the shops and administrative staff. This requires improvement of the forms of documents and better organization of the internal activity of the staff itself. But in each concrete case it is necessary to have independent development and individual decisions. General advice is not very effective here.

The situation is different with respect to such internal documents as reports, clarifications, in-house memos, summaries, references, plans and so forth. Here again it is quite justified to delegate authority. And the more completely this is done the fewer of these documents will take the time of the manager.

For example, here is what was done by the former director of Zhdanovtyazhnash, V. F. Karpov. He issued an insignificant number of orders and received almost no memos from his subordinates, and certainly no gossip (he broke them off that!).... Summary reports regarding the state of affairs in the shops were submitted to the director once every 5 days and he did not demand them more frequently.... The director saw the administrative art as being the ability to put today's concerns on the shoulders of his subordinates and to take care of new problems himself. At the basis of all organization is an efficient distribution of duties and the selection of people who know how to handle them.

The method of managing according to deviations is also effective. When receiving references, summaries, office memos and so forth, require that your subordinates do not turn in all the information but only those aspects of it which indicate a problem (the object, individual, phenomenon or situation) and therefore require your attention. It would also be desirable to design forms of documents that correspond to this approach, for example, submit to the manager forms which would indicate, say, not the volumes, but the deviations from the plans, normatives and so forth.

Check Yourself!

In conclusion we suggest thinking about three fairly typical situations when working with documents.

The first situation. In the director's office is a representative of a plant to which the association delivers a number of items under cooperation and with which good relations have taken form over many years. He asks that they change somewhat the products list and the delivery times, explains the need for this and offers the corresponding letter. Without having the necessary information on the essence of the problem, which is quite natural, and sincerely desiring to help the consumer and at the same time not desiring to give him false hopes, the director keeps the letter promising to look into the problem and to give help. Has he done the right thing?

When looking over the mail the manager discovers a document with which he would like to become more familiar. But he does not have the time right now and he keeps the document in the hope of reading it carefully on Saturday. Is he doing the right thing?

The third situation. Documents come in from the structural subdivision to the manager for a signature in three copies: one goes to the address, the second is returned to the subdivision and the third remains with the secretary or in the office. The third copy of the document is needed for insurance. The administrator is not convinced that the copy can be quickly found in the files of the structural subdivision and therefore he wants to have one copy stay with his secretary. Is this approach correct?

Answers

The first situation. The director is acting incorrectly. What will happen with the letter. Having invited the division chief to his office and discussed his capabilities with him, he will give him the letter with his resolution or without it. The situation does not always become clear within a week or two. It is not difficult to predict what will happen after that. At the plant they will be waiting for the result and, not having received one, they will write a second letter: "We ask that you accelerate your response to our letter of...." Having received it, the workers in the office will spend a half day looking for the preceding one, but, naturally, they will not find it.

Subsequently two variants are possible. They respond to the plant that its letter "of...No..." was not received. The circle is closed. A new letter comes in the mail and again the plant representative comes. In either case

this solution to the problem will be delayed. But if the plant receives no response the reaction will be analogous. Having considered the letter the director should send it immediately to the office or the secretary. Thus it would be assured of rapid handling, registration, filing and control over execution.

The second situation. The manager is acting incorrectly again. In the first place, by keeping the document he delays action on it. In the second place, the document is not registered and therefore it will be impossible to find it! In the third place, by acting in this manner the manager begins to create his own files which are accessible to nobody but himself and with time, when there are many documents, it will be difficult for even the manager himself to find anything in them.

In order always to have the document at hand or an excerpt from it, it would be useful to have a portable table copying machine. The installation of such a piece of equipment would not require any special permission or a separate location, and its operation would not require a special worker. The secretary can easily handle this task.

The third situation. From many standpoints this approach is ineffective. In the first place, it is inefficient: stored in the files are two identical copies, each of which requires the expenditure of labor for processing and storage. Second, when they are accumulated documents form something like a second set of files within the office. It is difficult to find documents in it since the "set of files" has no other reference apparatus except the memory of the secretary. Finally, this reduces the demands placed on the structural subdivisions where the documents should be concentrated, stored and processed.

The task of the manager is not the creation of "his own" filing system with the secretary, but the improvement of business correspondence, as a result of which there will be reliable and efficient search for documents within the structural subdivisions, that is, in the place where they should be stored.

The reader, of course, first thought about the situations and only then looked at the answers. If his decisions coincided with the answers, most likely his document circulation is all in order, he is not being swept up by a turbulent flow of papers and he steers his ship with a steady hand. Other answers call for action. Begin with a division of functions and think about people to whom authority can be delegated. On this foundation there will grow an efficient organization of your labor and that of other workers on the management staff.

Do not demand of your coworkers a reduction of paperwork--demand efficient organization of business, for paperwork does not appear of its own accord. It is precisely the organization of the activity of the staff that is the main concern of the manager who is trying to reduce document circulation.

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ECONOMICS BOOKS REVIEWED BRIEFLY

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 182-183

[Article: "Microreviews"]

[Text] Grebnev, Ye. T. "Upravlencheskiye novovvedeniya" [Management Innovations], Moscow, "Ekonomika", 1985.

The book gives the theoretical and methodological fundamentals of the introduction of management innovations. Here basic attention is devoted to problems which have not yet been sufficiently investigated by Soviet and foreign scholars: the singling out of the economic effect of one or another management innovation from the overall results of the economic activity and measuring it; increasing the effectiveness of innovations as a result of investigating the complex of behavioral, technological and technical factors; determining the conditions for investigating the potential advantages of the innovations; purposive regulation of the process of the introduction of innovations with the help of the mechanism for evaluating, planning, analyzing and accounting for its economic effectiveness.

Zusman, L. L. "Narodnokhozyaystvennyye problemy ekonomii metalla" [National Economic Problems of Saving on Metal], Moscow, "Ekonomika", 1985.

The work is devoted to one of the most important national economic problems--economizing on metal. Its author investigates the main directions for efficient utilization of metal in all stages of its production and consumption, beginning with the extraction and enrichment of iron ore and ending with the utilization of secondary resources. Reserves are shown for economizing on metal and the process of its production--improving the composition of the raw material and applying progressive methods of production which make it possible to reduce wastes. A good deal of space is devoted to measures for economizing on metal in the process of its consumption in metal processing, machine building, construction and other branches. Emphasis is placed on the significance of advanced methods of processing metal and improvement of machines and other kinds of metal items.

Chubarenko, A. I., Shalimov, V. Ye., and Kolesnikov, A. S., "Ekonomicheskoye upravleniye nauchno-tehnicheskim progressom. Spravochnoye posoviyе"

[Economic Management of Scientific and Technical Progress. Reference Aid],
Moscow, "Ekonomika", 1985.

The book is addressed to specialists in the area of management of scientific and technical development of production with the help of economic methods. Its first section presents the methodological points regarding the development of the Comprehensive Program for Scientific and Technical Progress and Scientific and Technical Programs, whose basic assignments and measures are included in the state plans for the country's economic and social development. Methodological issues related to the development of plans for the development of science and technology on the national economic scale, and in the ministries, production associations and enterprises are elucidated.

The second section is devoted to methods of calculating the economic effectiveness of measures that provide for acceleration of scientific and technical progress in industry: scientific research and planning work, the utilization of new technical equipment, inventions and efficiency proposals, expansion, reconstruction and technical reequipment of existing enterprises, the introduction of automated control systems, standardization and scientific organization of labor.

At the center of attention in the third section is the financing of scientific research work, the formation and utilization of the unified fund for the development of science and technology in the branch, the fund for the development of production at the enterprise, payment for completed scientific research, planning-design and technological work that has been completed and accepted by the client, and so forth. Material incentives for scientific and technical progress are considered: the formation and utilization of incentive funds for the creation of new technical equipment and improvement of product quality in scientific research institutes, design bureaus, production associations and enterprises, the sources and system of bonuses for the creation, introduction and assimilation of new technical equipment, and so forth.

"Spravochnik po tsenoobrazovaniyu" [Reference Guide to Price Setting].
Compilers: A. M. Matlin, V. G. Olkhovoy, A. N. Rudin, V. I. Torbin; ed. by
N. T. Glushkov, Moscow, "Ekonomika", 1985.

The reference guide indicates the position of prices in the system of management of the national economy and elucidates the CPSU policy in the area of prices in various stages of socialist construction and also the formation of state price-setting agencies. A large amount of space is devoted to the economic content and functions of prices, production costs that are based on prices, normatives of profitability, normatives of net output, and also the planning of prices and their utilization in planning calculations. The organization of planned price setting, the policy for establishing and applying prices, control over the observance of state price discipline, and the application of economic-mathematical methods and computers in

substantiating prices are also considered. The basic content of the reference guide is the presentation of methods and the practice of forming prices and tariffs for specific kinds of goods and services from all branches of the national economy.

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READERS REPORT ON CONFERENCES

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 184-186

[Letters from readers: "Recalling the Past Year..."]

[Text] Odessa. The oblast council of the scientific and technical division, the interbranch center for scientific and technical information and propaganda and the council of young scientists and specialists under the obkom of the Ukrainian Komsomol conducted a conference entitled "The Problems of Life--The Problems of EKO."

During the discussion desires were expressed that the magazine be made more useful for a broad range of readers. Thus the docent of the Institute of the National Economy Ya. P. Gulinskiy thinks that materials on problems of VUZ science should be published more frequently, especially concerning the introduction of recommendations into production. The leading designer of the Poligrafmash SKTB, V. P. Kovylin, suggested that there be more regular articles on consumer goods. In the opinion of Candidate of Economic Sciences G. V. Rybakov, problems of reducing the proportion of manual labor, economic innovations and training managers should be given primary attention.

Participants in the conference in Odessa were familiarized with the exhibit "We Read, We Discuss, We Suggest" at which issues of the magazine from all the years of its publication were displayed.

--Yu. B. Pigarev, candidate of economic sciences,
and A. V. Gallyas.

Chelyabinsk. There is an EKO club operating in the oblast house of scientific and technical information. On the basis of this there was a readers' conference. The head technologist of the plant for metal structures, Candidate of Technical Sciences L. I. Livshits drew the attention of the editorial staff to the small number of articles with political and economic content. "Frequently discussions arise among economists," he said. "It is necessary to find a place for them to discuss the most crucial and pressing problems on the pages of the magazine." The statement of the deputy chief of the Chelyabinsk Branch of the Scientific Research Automotive and Tractor Institute, V. I. Duranovskiy was devoted to problems of scientific and

technical progress, particularly flexible automated productions. Participants in the conference also discussed the problem of having labor productivity increase more rapidly than wages do, the possible growth of labor resources in various regions of the country, and a comparative analysis of the levels of economic development of the USSR and the United States.

--A. K. Prudnikov, department head of Chelyabinsk State University

Krasnodar. There were 140 readers participating in the conference here. V. V. Rodionov, department head of Kuban University, noted that the development of science depends a good deal on the activity of its most important organizers. Yet the readers still know little about them. G. M. Karpenko, head of the division of the VNIPPI for processing gas, criticized the editorial staff for publishing tests which as a genre had lost their freshness, originality and innovation. S. N. Zhukov, the chief of the planning and economics division of the Krasnodarselmash Plant, discussed "blind alley" problems of the enterprises--planning consumer goods and the constant reduction of the staff. V. A. Yunov, deputy head engineer of the Plant for Tensometric Instruments called for accelerated practical solutions to such problems as financing plans for technical reequipment, increasing the real influence of the numerous environmental protection inspections and establishing technical specifications and prices for new products.

--A. A. Voronov, candidate of economic sciences

Rostov-on-Don. Local readers of the magazine, having gathered at their first conference, were interested in the deadlines for the publication of articles, the organization of the work of the magazine's editorial board and the possibility of publishing a special appendix--a small library regarding key problems of management. Participants in the conference expressed the wish that EKO were more clearly oriented toward the basic group of subscribers--production workers. More articles revealing advanced experience and the technology of its introduction were called for by the chief of the Bureau for Social Development of the Helicopter Plant, S. B. Yeselson. A professor at the Institute of the National Economy, Yu. V. Bogatin, suggested creating an "idea bank" in the magazine. At the conference they also discussed problems of agroindustrial integration, the development of powder metallurgy and other things.

--A. L. Bereznyak

The deputy editor in chief of the magazine, Dr of Economic Sciences B. P. Orlov spoke at all of these conferences and announced the plans of the EKO editorial staff and also described the economic situation in the country.

Dnepropetrovsk. In January 1985 the readers of the magazine gathered in the oldest VUZ in the city--the Mining Institute. The speakers--a senior engineer from the pipe rolling plant, Ye. S. Oleynik, the department head of the Mining Institute, A. A. Zadoya, and others--noted that the magazine's articles on the experience of enterprises in the city evoked a great deal of interest. At the same time local reserves for the publication of articles are still great, and in particular there are many crucial problems at metallurgical enterprises of

the region. A desire was expressed that problems of the large-scale experiment be elucidated not only under the rubric "Attention: Experiment!" but also under such rubrics as "Socioeconomic Problems of Labor," "Systems and Methods of Management," and "Management Consulting." At the conference it was stated that the economic training in the VUZes and the behavior of young specialists in production are closely interconnected and that these ties should be analyzed. For young specialists it is useful first of all to publish advice under the rubrics "Technique for Personal Work," "Advice to the Businessman" and also "Digest."

The plans of the editorial board and the editorial staff for 1985 were discussed by the deputy editor in chief Dr of Economic Sciences D. D. Moskvin. He answered numerous questions from the readers and assured them that their remarks and suggestions would be taken into account in the future

--A. L. Chernenko, candidate of economic sciences

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ILLICIT EXCHANGE OF GOODS SATIRIZED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 9, Sep 85 pp 187-190

[Article by Leonid Tryeyer: "UFO"]

[Text] On Saturday at daybreak the mechanic Chuguyev, having awokened with his nerves on edge went out onto the balcony for a smoke. He had taken three drags and suddenly he saw a strange picture. In the southwestern direction above the Rus an object without any recognizable signs was flying silently. The gray dawn made it impossible for Chuguyev to see the details. Having made an arc over the microrayon the heavenly body landed in a birch grove. The mechanic immediately remembered the flying saucers and decided to go to the landing place. He did not awaken his wife, he got dressed, he took his ID card just in case and he left the apartment.

Chuguyev found no traces of a space ship from another planet in the birch grove. He went out into the meadow and sniffed the breeze. It smelled of gasoline. In the center of the meadow the grass was trampled down. The mechanic bent over and picked up a piece of ice with red veins and was struck by his discovery.

"Ice in July...," he said, having licked the cold surface. "It is probably not ours...."

He placed the ice on his palm and took it home as his main piece of evidence. By the time he got there the ice had melted.

On Sunday, again near morning, Chuguyev hid on the balcony watching out for strangers. He sat there until the sun came up but nobody showed up. Anyone else would have thrown up his hands and forgotten about it, but Chuguyev was stubborn. All week he was up at dawn on the balcony and by 8 he had gone to work. Because of his lack of sleep he quarreled with many good people. His wife decided that he had taken to going out on the balcony because of a woman and became very jealous....

The flying object appeared exactly a week later, during the night between Friday and Saturday. Passing over the roofs in the same direction as before it again hid itself in the grove. This time Chuguyev understood his mistake.

He had to wait for the strangers not on the balcony, but in the area where they landed. And not every day, but only on Saturdays. And not alone, but with a friend. He selected to go with him his neighbor on the block Mikhail Sherstyannikov, a sensitive person who was light on his feet. That same day he made a proposal to him. The neighbor became excited and wanted to run and get a gun so as to greet the flying saucer in a worthy way, but Chuguyev stopped him.

During the night between Friday and Saturday, before daybreak, they ensconced themselves in the grove. They selected their position intelligently, next to the meadow which was convenient for landing. Sherstyannikov lay on his back and sighed. Chuguyev forbade him from drinking or smoking.

"Filippych," said Mikhail, "do they have women on board?"

The mechanic did not have time to answer. The birches began to dance in the rays of the headlights and the Zhigulenok rolled up to the meadow. The guards, having merged with the landscape of the area, strained their senses of hearing and sight. The doors of the machine opened up. Two figures busily beat down the grass around the ambush, conducting an incomprehensible conversation.

"Put on your helmet!" said the first. Suddenly he struck a head of cabbage....

The second replied:

"Then even helmets will not save us!" The unknown citizen sat down under a tree, looking at the sky.

"Competitors...." whispered Sherstyannikov, but Chuguyev put his hand over his mouth.

The sky had turned pale. The night bird, blinded in the light, sang its last notes and went to rest.

"It flies!" declared the voice under the tree. "Do not let yourself be seen!"

Chuguyev raised his head and could not believe his eyes. Into the grove fell a natural cow's carcass, ready for sale to the population. The carcass cut into the meadow, causing the soil to move. The two figures in helmets ran up to it, waved to the Zhigulinka, asking it to come closer.

Chuguyev, having expected to meet someone from another planet, was upset and was passive. But Mikhail Sherstyannikov acted thoughtfully. He jumped behind a birch tree and screamed to the entire forest:

"Comrade Colonel! Here they are! We shall take them alive!"

The two figures in the helmets cowered before this unexpected occurrence and took off running toward the machine. The Zhigulyonak also accelerated to get away from the unpleasantness, so that the citizens who were running found it

very difficult to catch up. The automobile finally faded into the distance and Sherstyannikov still could not stop and was shouting various orders he had heard in the detective films.

When the machine had rolled away Chugulyev went up to the carcass and began to study it. He did not discover any signs of outer space. The meat was frozen, of earthly origin. The neighbor suggested taking the beef to market immediately before it spoiled. Chuguyev did not agree.

"This is a riddle of nature!" he said. "Who put the cow in orbit and why did it fly?"

Leaving Sherstyannikov to guard the carcass the mechanic went to the police and explained the incident in detail. They heard him patiently, but did not believe him.

"A cow is not a bird," said the lieutenant in charge. "And we have received no reports about the theft of cattle yet...."

Chuguyev did not argue, but went to see the scientific associate Dyatlis who frequently fixed his iron, radio and other household appliances. Dyatlis, who had lost his hair from mental labor, was not surprised by the mechanic's story, took in hand his calculator which looked like a chocolate bar and began to make calculations. Chuguyev politely leafed through a book called "Quantum Electrodynamics" not wanting to impede the scientist's thinking. After about 20 minutes Dyatlis announced that the cow was released in the region of the meat combine with the help of an unknown device....

With this interesting fact Chuguyev ran to the grove but he did not find either his neighbor or the carcass there. Mikhail Sherstyannikov did not show up until dinnertime but he was in a good mood and he handed his friend a bundle of money.

"It is a hot day, Filippych!" he said gaily. "The product could have spoiled and I could not have forgiven myself for that."

Chuguyev took the money, promising to spend it on solving the mystery. Mikhail did not want to take this oath, although he promised to help at any time of day.

The first thing they did was to infiltrate the meat combine in a group of cattle. The inspection of the shops and territory expanded their horizons but did not bring them any closer to the goal. They did not find any machine for sending cows' carcasses into the sky. To be sure, in a shed out in a secluded area there rusted an incomprehensible piece of equipment and Mikhail Sherstyannikov thoughtlessly started it up and barely saved his rear end from the cutting service. It became clear that the launching installation had been disassembled or had been well hidden....

Then Chuguyev decided to construct one himself, in order to test his hypothesis experimentally. The idea was suggested to him by a slingshot the teacher had taken away from his son and given to the father for educational

purposes. Somewhat later he saw in the textbook the history of the projectile implement for casting rocks into besieged fortresses. The mechanic liked the design of the medieval craftsmen. Of course he did not copy one to the other. Wherever he could he streamlined it. Additionally, the material was not the same as it was in the old days, but stronger: titanium, molybdenum, nonrusting metal. He had plenty of this at work.

By spring Chuguyev had assembled a modern projectile machine. The testing went successfully. A bag of sand flew almost 400 meters and landed at the set point without deviation. Mikhail Sherstyannikov, who was present at the launching, kissed the mechanic and said, wiping his eyes: "You, Filippych, are something!"

Unfortunately, the story did not end here. Out of gratitude Chuguyev gave his neighbor a detailed blueprint of his machine. This was a mistake on his part. Because Mikhail Sherstyannikov turned out to be a person with a very small conscience and began to sell the blueprints to anyone who wanted them at 6 rubles each.

You probably already know what this led to. The number of objects flying over the city is increasing. Certain impressive citizens assert that these are UFO's and are disturbed. But in fact what is flying over the roofs are spare parts, slate, instruments, timber materials and other goods for the home and family. They do not land where they are intended to but where they are needed, and they immediately fall into the proper hands. So everything is in order, comrades. The objects have been identified!

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